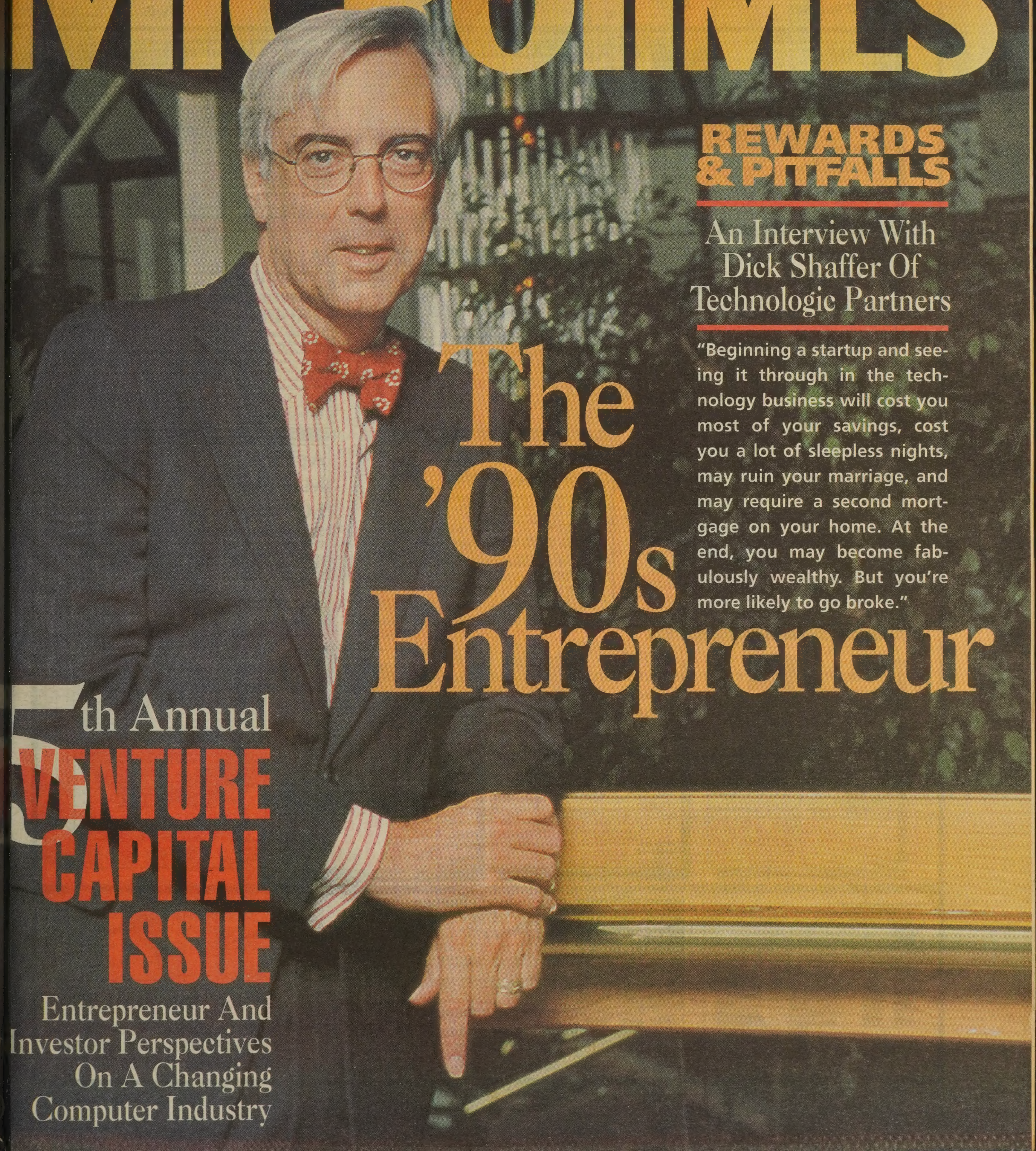
Northern California's Computer Magazine
Oct. 18, 1993 • #114
FREE

# MICROTIMES



## REWARDS & PITFALLS

An Interview With
Dick Shaffer Of
Technologic Partners

"Beginning a startup and seeing it through in the technology business will cost you most of your savings, cost you a lot of sleepless nights, may ruin your marriage, and may require a second mortgage on your home. At the end, you may become fabulously wealthy. But you're more likely to go broke."

## The '90s Entrepreneur

## 5th Annual VENTURE CAPITAL ISSUE

Entrepreneur And
Investor Perspectives
On A Changing
Computer Industry

# Apple® Macintosh® Computers and Accessories

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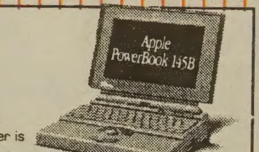
## Apple® PowerBook™ 145B 4/40

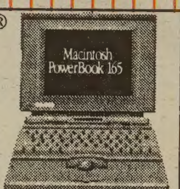


The Apple® PowerBook™ 145B computer is designed for those who want solid Macintosh® performance and flexibility in a convenient, take-it-wherever-you-work notebook computer. Although it fits easily in your briefcase, this innovative notebook computer offers the full power and ease of Macintosh computing. The PowerBook 145B makes it easy to work on the road or on your desk. The sleek, ergonomic design includes standard-size keyboard, integrated trackball and palm rest, and a bright, full page-width display. 4MB RAM • 40MB Hard Drive

#1801998

**$1249**

## Apple® Macintosh® PowerBook™ 165 4/80



The PowerBook™ 165 delivers the processing speed, flexibility, and convenience you need all in a package that weighs just seven pounds and fits into a briefcase. You can also connect to a larger display for more work space.

#1833715

**$1799**

## Apple® Macintosh® Color PowerBook™ 165c 4/80

Macintosh PowerBook 165c

With the PowerBook™ 165c, the impact and appeal of a bright, vivid color display is now available on a portable Macintosh computer. It delivers the processing speed flexibility, and convenience you need all in a package that weighs just seven pounds and fits into a briefcase. It also features a backlit passive-matrix display that gives you 256 brilliant colors. You can also connect to a larger display for more work space.

#1767393

**$1699**

## Apple® Macintosh® Powerbook™ 180 4/80

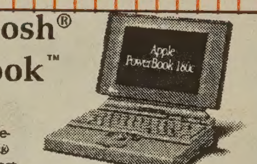
Apple PowerBook 180c

The Apple® Macintosh® PowerBook™ 180 computer is the most powerful member of the PowerBook family of notebook computers. It combines incredible speed with high performance and the best screen quality available today, to give you a notebook that's flexible, functional, portable, and powerful. The PowerBook 180 has everything you need for impressive client presentations. Video-out capabilities let you work on a variety of external displays, both monochrome and color. It comes standard with 4 megabytes of RAM and runs applications up to 50 percent faster than the PowerBook 140.

#1738306

**$2349**

## Apple® Macintosh® Color Powerbook™ 180C 4/80



The sharpness and clarity of an active-matrix color display makes the Apple® PowerBook™ 180c computer the most powerful and colorful member of the PowerBook family of notebook computers. The PowerBook 180c is perfect for dramatic one-on-one client presentations. The PowerBook 180c comes standard with 4 megabytes of RAM, expandable to 14 megabytes, so you can work on multiple applications simultaneously. A 68030 microprocessor running at 33 megahertz and a powerful math coprocessor let you handle the most demanding applications.

#1802014

**$2959**

## Apple® Macintosh® PowerBook Duo™ 210 4/80

Macintosh PowerBook Duo 210

The Apple® Macintosh® PowerBook Duo™ 210 computer gives you the best of both worlds,desktop expandability and peripherals, plus PowerBook convenience and portability. You can also use it with a unique desktop docking system. The Macintosh PowerBook Duo 210 comes with 4 megabytes of RAM (expandable to 12), an 80 megabyte internal hard disk drive, and two expansion slots.

#1738339

**$1199**

## Apple® Macintosh® PowerBook Duo™ 230 4/80

Macintosh PowerBook Duo 230

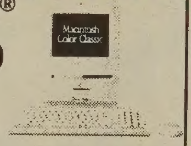
The Apple® Macintosh® PowerBook Duo™ 230 computer is Apple's highest performance PowerBook docking system, offering you the convenience of a notebook computer plus the unique ability to take advantage of your desktop computer's files, storage, and accessories.

68030 33MHz CPU • 80MB Hard Drive • 4MB of RAM Expandable to 24MB
2 Expansion Slots: 1 for Modem/ 1 for RAM • Serial Port
Docking Connector
Power Adapter Port
Modem Port
9" Backlit Supertwist Display
Nickel-Hydride Battery
Built-in Appletalk

#1738340

**$1599**

## Apple® Macintosh® Color Classic® 4/80



The Apple® Macintosh® Color Classic® computer combines the performance and affordability of the Apple Macintosh Classic II with the ability to display up to 256 colors on its built-in Trinitron screen.

- 4MB of RAM, expandable to 10MB
- 40MB, 80MB, or 160MB internal hard disk
- Built-in LocalTalk® connection
- AppleTalk® networking software
- Easy to transport
- A member of the Classic Macintosh product line

#1767430

**$1099**

## Apple® Macintosh® LC III 4/80

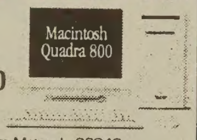
Macintosh LC III

The Apple® Macintosh® LC III is the most powerful member of the Macintosh LC line of desktop personal computers. It delivers the out-standing performance and versatility you need—all in a slim-line, modular design and at an affordable price.

Monitor not included.
#1765793

**$1149**

## Apple® Macintosh® Quadra™ 800 8/500

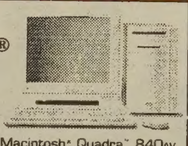


With its fast, 33-megahertz Motorola 68040 microprocessor, accelerated graphics architecture, and improved SCSI and NuBus capabilities, the Macintosh® Quadra™ 800 runs applications 30 percent faster than the Quadra 700. The Macintosh Quadra 800 gives you unique, built-in capabilities for fast and direct access to the resources you need. For photographic quality images and QuickTime movies with lifelike color, you can upgrade the Quadra 800 to display more than 32,000 colors on the same 16-inch display. If you need to share information in a high-speed network, the Quadra 800 comes with built-in Ethernet. *Monitor & Keyboard Extra*

#1767728

**$3899**

## Apple® Macintosh® Quadra™ 840AV 16/500

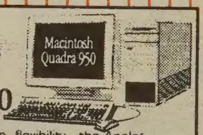


To put it simply, the Apple® Macintosh® Quadra™ 840AV computer is the most powerful, feature-rich system Apple has ever built. With an innovative architecture that delivers exciting new capabilities in telecommunications, video, and speech, the Macintosh Quadra 840AV helps you communicate more effectively than ever before. The Macintosh Quadra 840AV combines the raw horsepower of a 40-megahertz 68040 microprocessor with a 66-megahertz digital signal processor (DSP) to achieve outstanding performance. The DSP handles telecommunications, speech, and audio functions, allowing the 68040 processor to perform other tasks, thereby increasing the total system performance.

Monitor and Keyboard not included.
#1820373

**$4299**

## Apple® Macintosh® Quadra™ 950



Maximum power, expansion, flexibility—the Apple® Macintosh® Quadra™ 950 personal computer delivers all three in the most powerful Macintosh ever. Unlike other personal computers, the Macintosh Quadra 950 comes with many built-in capabilities that give you fast, direct access to the resources you need. Built-in networking for plugging into Ethernet and LocalTalk®. Built-in support for all Apple displays. Ten built-in ports for instant access to printers, scanners, high-capacity disk drives, and more.

PMMU and 8K of Memory Cache
Running AT 33MHz • 8MB of RAM Expandable to 64MB
5 NuBUS Slots • Processor Direct
Slots support seven SCSI Drives
Built-In Appletalk and Ethernet

Monitor and Keyboard not included.
#1713545

**$3199**

## Apple® Macintosh® IIvx™ 4/80 512K VRAM

Macintosh IIvx

The Macintosh IIvx is ideal for users who seek faster performance, more memory, and future expandability. System memory can be expanded from 4 to 20 megabytes. It comes equipped with a math coprocessor and cache card for increased speed. And it can be equipped with an internal CD-ROM drive, for instant access to thousands of volumes of information stored on CD.

68030 32MHz CPU • 32K Memory Cache
68882 Math Coprocessor • 512K VRAM
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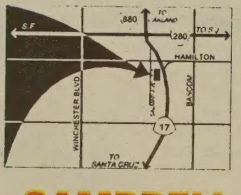

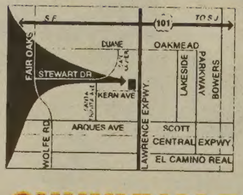

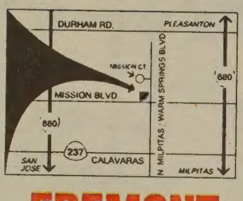

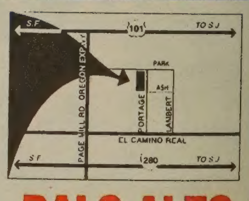

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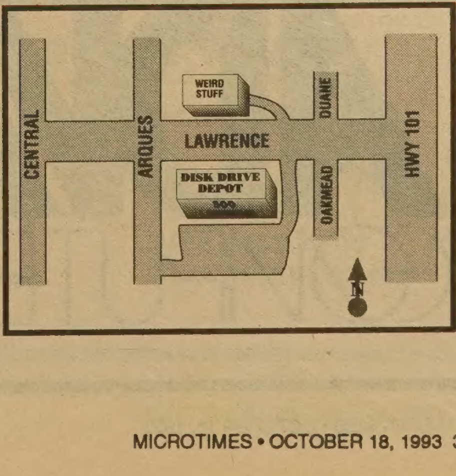

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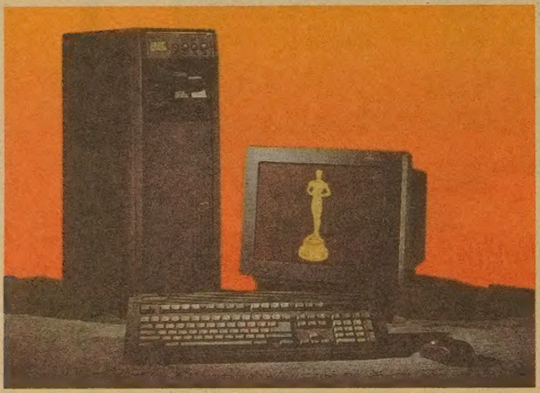

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Are the days of the successful high-tech start-up over? Not necessarily, says Dick Shaffer, founder of Technologic Partners, one of the investment community's primary information sources. But the startup is not for the faint-hearted or the risk-averse.

In addition to Shaffer's comments, our annual Venture Capital issue features a first-person piece from a Silicon Valley entrepreneur on navigating the VC jungle, and a case history of a successful startup in today's cautious investment climate. We hope you find all this informative, and maybe even get some ideas for your own current or future company.

—ME

MICRO MARKET PLACE
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**Cover photo: Michael Jay**
Dick Shaffer has been observing and catalyzing the computer industry for quite some time now; we took advantage of the opportunity to get his views on its current state during his recent conference in Burlingame.

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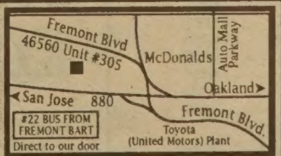

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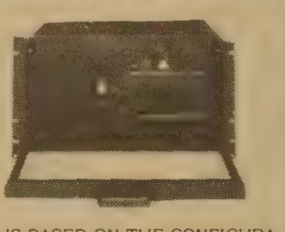

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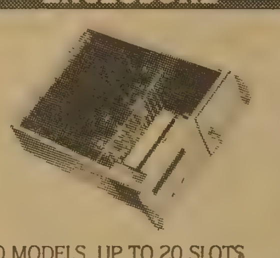

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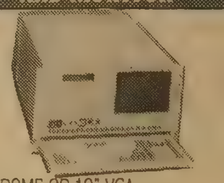

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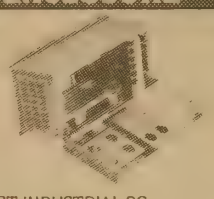

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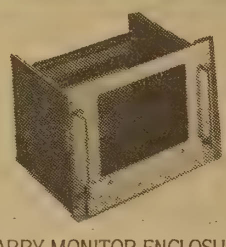

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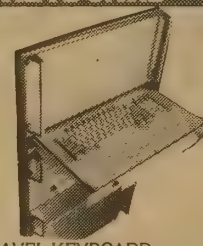

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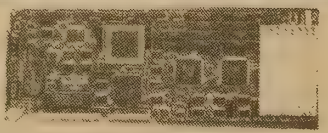

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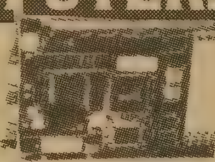

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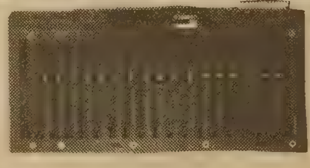

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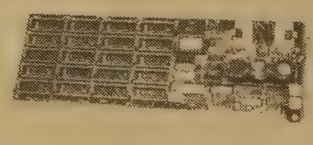

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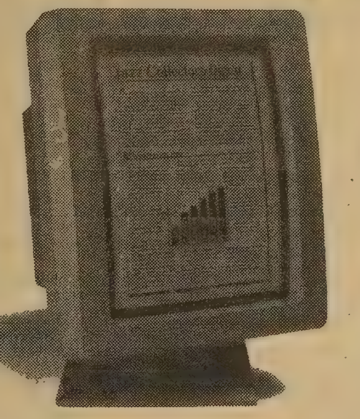

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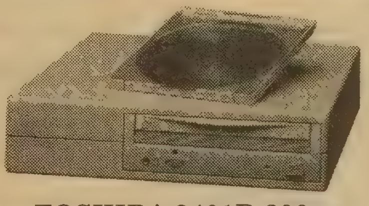

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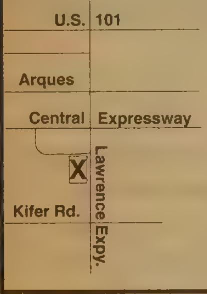

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# INDUSTRY INSIGHT

## *Latest On The Legal Front: Intel Vs. AMD, Lotus Vs. Borland*

## *Chip Wars Surprise: AMD Admits Using Intel Code In Am486 Chips*

**BY PAUL HOFFMAN**

Adding a bizarre twist to the ongoing Intel-AMD battle, Advanced Micro Devices now says that the CPUs it previously indicated had no Intel code do indeed use Intel's 80386 microcode.

This announcement came after the California Supreme Court decided to hear AMD's appeal in Intel's case against AMD for using the 80386 code in earlier chips. The announcement that the new Am486 chips include possibly infringing code shocked many AMD customers, who had hoped to insulate themselves against a possible Intel victory, assuming that AMD was telling the truth in July when it said that the new chips were "clean."

The story thus far in the case looks more like a tennis match. AMD and Intel had a long-standing agreement that AMD could be a "second source" for Intel's CPUs. After Intel became a runaway success in the market, it sued to prevent AMD from cloning the 386. After lengthy arbitration, Intel lost its case and was roundly drubbed by the arbitrator.

*Copyright © 1993 by Paul Hoffman. All rights reserved.* *Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman @well) or CompuServe (71545,346). He also writes popular microcomputer books.*

Intel then appealed the arbitration and, last year, got the arbitration results overturned. AMD appealed that decision, and the California Supreme Court has agreed to hear itsappeal.

At the same time, Intel sued AMD for copying the 80287, a math coprocessor chip. In that case, Intel convinced a jury that AMD was, in fact, not allowed to copy the designs. Earlier this year, a judge threw out that decision after finding that Intel hid relevant facts from AMD during the trial, thus forcing a new trial. The new trial in that case is currently scheduled for early November of this year.

After the 80287 case was overturned, AMD decided to jump into the 486SX market, assuming that it will win the next trial now that more facts are known and now that AMD knows Intel's legal strategy. At the time, AMD said that the Am486 chips that it had in stock directly used Intel microcode (the core instructions in a CPU that determine how machine commands are executed), but that it would soon come out with a 486 that had no Intel microcode.

Many of AMD's customers assumed that the next generation of CPUs were in fact "clean," meaning that the people who designed them didn't have access to the methods used in Intel's chips so that anything they did would be original. In May, AMD's CEO Jerry Sanders told the press that AMD would release the new CPUs with clean-room microcode on July 4. In July, AMD announced the release of the new chips, and said that they were developed in a "clean-room" environment.

> **THE ANNOUNCEMENT THAT AMD'S 486SX CHIP USES ALMOST 25% OF THE INTEL MICROCODE HAS MADE IT VERY DIFFICULT FOR AMD TO LOOK LIKE AN HONEST UNDERDOG IN THE BATTLE.**

The recent announcement that AMD's 486SX chip uses almost 25% of the Intel microcode has made it very difficult for AMD to look like an honest underdog in the battle. Sanders' defense of using the Intel microcode—that the court cases were all going in AMD's favor—completely skirts the issue of lying about the use of Intel's microcode in public. His statement that AMD will soon release a "bulletproof" version of the microcode will probably be met with great skepticism from buyers who believed that the chips they now have in stock were already using the AMD-only code.

It is likely that Intel will sue AMD over the new chips, even if they were in fact clean, because Intel claims that its intellectual property is being used. Unless AMD can somehow get an outside expert with access to both sets of microcode to validate that their new microcode is clean, AMD's reputation will be hurt for a long time.

Intel is not AMD's only problem. Cyrix and Intel recently dropped some of their lawsuits against each other so that they can concentrate on their businesses and on their remaining major lawsuit concerning whether Cyrix can use Intel-licensed chip foundries as a protection against infringement. Cyrix will also be competing with AMD in the 486 arena with a 486DX-compatible processor that should be announced soon.

### LOSING IS WINNING, AT LEAST TO BORLAND

Lotus won another of its legal cases against Borland, and Borland couldn't be happier. The same federal judge who had found in favor of Lotus many times in the past ruled that Quattro Pro infringed on Lotus 1-2-3 and therefore put an injunction on Borland to prevent it from selling Quattro Pro.

*continued on page 19*

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- *-Middle Tower Case w/250w Power*
- *-2 VL-Bus Slots, 7 16-Bit ISA Slots*
- *-High Quality 101-Key Keyboard*
- *-MS-DOS V6.0 with Manual*
- *-3 Buttom High Resolution Mouse*

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- *-VL-Bus IDE Interface*
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- *-15" MAG FlatSreen SVGA 1280 NI*
- *-Middle Tower Case w/250w Power*
- *-2 VL-Bus Slots, 7 16-Bit ISA Slots*
- *-High Quality 101-Key Keyboard*
- *-MS-DOS V6.0 with Manual*
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| 4DX-33 | 4DX2-66 |
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| *JUMBO TRAKKER 120MB* | *$309* |
| *JUMBO TRAKKER 250MB* | *$369* |
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*Please call for items not listed.*

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| *SONY 31A CD-ROM* | *$225* |
| *TEXEL DM-3024 Iint.(265ms)* | *$355* |
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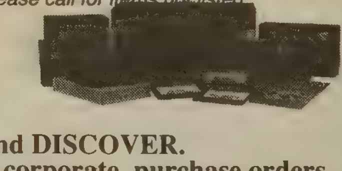

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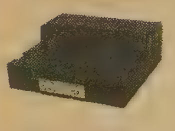

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- *High Quality 101-Key Keyboard*
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- *MS-DOS V6.0 with Manual*
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- *High Quality 101-Key Keyboard*
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*Cooling Fan/Heat Sink for any Intel 486SX, DX or DX/2 CPU - includes in-line power adaptor* **$19.95**

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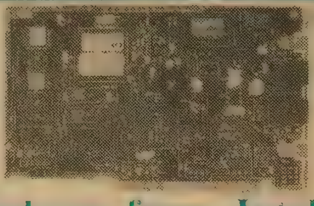

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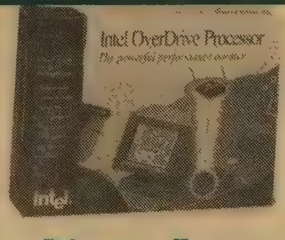

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*SoundBlaster Deluxe........$84.95*
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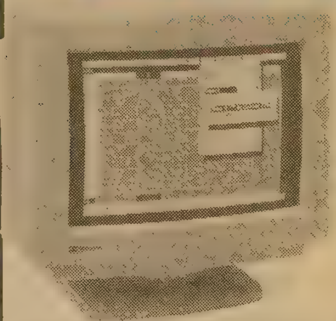
## NEW



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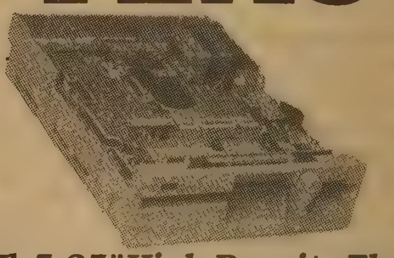

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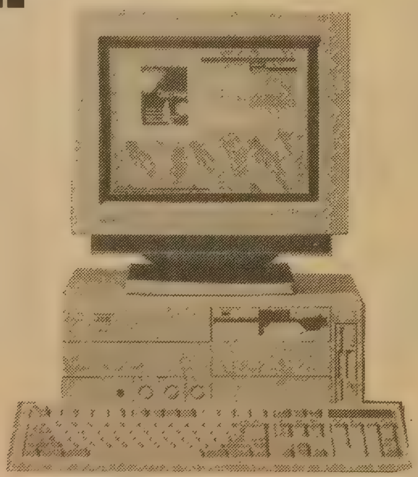

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- Conner 30174 170Mb 17ms IDE Hard Drive
- SVGA Windows Accelerator with 1Mb RAM
- 14" 1024x768 Non-Interlaced .28mm Mntr.
- Maxi Switch 101-Key Tactile Feedback Kbd.
- Logitech Serial Dexxa Mouse with drivers
- Microsoft MS-DOS 6.0 & MS-Windows 3.1
- JDR's 30-Day Money-Back & 1-Yr. Warranty
- Ask about our Extended Warranty Option

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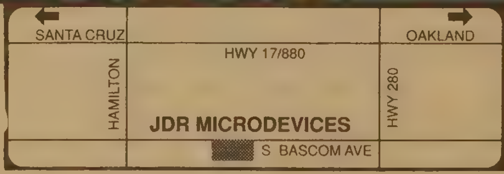

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*continued from page 14*

According to Borland, this is exactly what it wanted, because it finally made it possible to appeal all the cases to a higher court, and it happened at a time when Borland was about to release its newest version of Quattro Pro, v5—which did not have the features the judge objected to.

US District Judge Robert Keeton, who has ruled in favor of Lotus almost every step of the way in its cases against Borland and the now-defunct Paperback Software, said that Quattro Pro infringed on 1-2-3 because it could read 1-2-3's macros. Such a ruling, if supported on appeal or by other federal district judges, would have a devastating effect on the software industry as it currently stands because it would make switching from one software product to another almost impossible. It could seriously hurt Microsoft, for example, if WordPerfect Corp. decided to sue for the features in Microsoft Word that help WordPerfect users switch. Given the high volume of sales in the "competitive upgrade" market, the decision would seriously dampen the sales of many first- and second-tier software companies.

**SANDERS' DEFENSE OF USING THE INTEL MICROCODE—THAT THE COURT CASES WERE ALL GOING IN AMD'S FAVOR—COMPLETELY SKIRTS THE ISSUE OF LYING ABOUT THE USE OF INTEL'S MICROCODE IN PUBLIC.**

Immediately after the hearing, Borland told dealers to stop selling Quattro Pro v4 within a week. Coincidentally (but fortuitously), Borland had v5 ready to ship, and so far the new version has garnered high ratings and good reviews even without the "key reader" feature that was in question. Borland persuaded Judge Keeton to postpone the damages part of the trial for over a year to increase the chance that the ruling will be overturned on appeal.

Already, other companies have come to Borland's defense, saying that the macro-reading abilities have nothing to do with the "look and feel" of 1-2-3, only with how the language that Lotus decided to use for its macros is structured.

## WINDOWS NT: IF IT'S JUST A SERVER, WHY ALL THE EXCITEMENT?

Microsoft has officially shipped Windows NT, its long-awaited and much-hyped new operating system. The release version is in the hands of the tens of thousands of companies who are analyzing it to determine how it fits into their current and future plans.

One thing has become quite clear now that companies and the press can analyze it without all the pre-release speculation: it is not much of a single-user operating system.

The early results indicate that Windows NT competes well as the operating system on file and data servers, but the steep hardware requirements and only so-so performance with current applications make it much less attractive as the operating system to run on a single-user system, even a "power workstation." For starters, you must have a minimum of 8MB of RAM; 12MB is the "suggested minimum." According to testers, the system barely slogs along with only 8 meg, and the speed difference between 12 and 16 MB for running a few programs at one time is significant. Also, don't even think of running it on a CPU with less horsepower than a 486 running at 33MHz (most of the published tests have been on 486/66 systems).

With RAM prices as high as they are now, it seems pretty unlikely that many people would go out and buy 8MB of RAM to add to their current 4–8MB, just to try out the new operating system. That

*continued on page 63*

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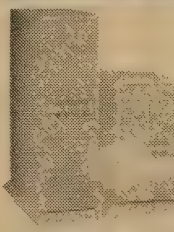

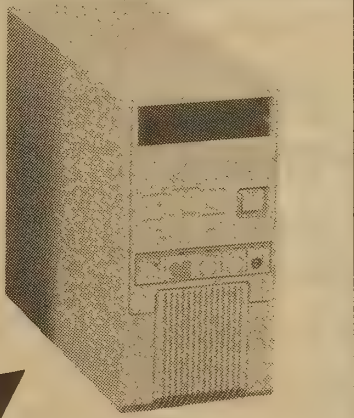

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| PS2-235 | PS2 Type 235W P/S (w/Extention Cable) | |
| PS2-200 | PS2 Type 200W P/S (w/Extention Cable) | |
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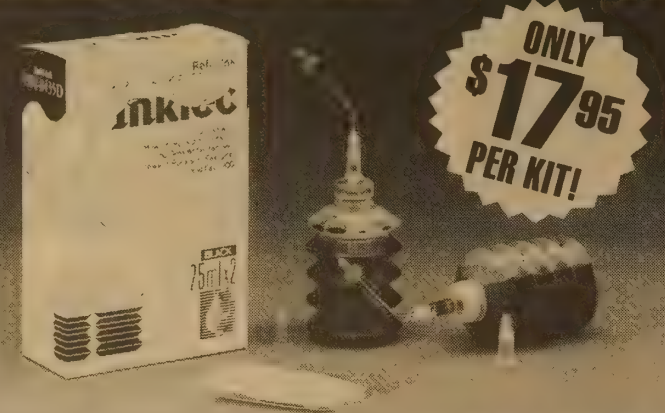

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alone might put a significant damper on early adoption and on the desire of Windows applications companies to convert their Windows applications to Windows NT.

Further, it is not clear how smooth the transition will be. Although the release version of Windows NT seems to run almost all Windows 3.1 and MS-DOS programs just fine, there are many hardware drivers that do not run at all, or run poorly, under NT. Power users tend to have more esoteric hardware devices on their PCs, and they learned the lesson of trusting first-version drivers with OS/2 v2.0 last year.

Windows NT is clearly an impressive performer as a network server. However, running MS-DOS and Windows programs, it doesn't offer anything special. For instance, it runs MS-DOS programs at anywhere from the same speed to half as fast as under plain MS-DOS; many Windows 3.1 programs run at around the same speed, although others (including, humorously, Microsoft applications such as Excel) run slower under NT than under Windows 3.1. Thus, the fact that NT is a 32-bit operating system with lots of bells and whistles won't do much for you if you run non-NT programs for much of your day.

**Software companies testing their products on the experimental hardware have reported that they are amazed at how most of their software runs flawlessly on the new systems with no changes, and how fast the code runs.**

If Windows NT is really meant as the operating system for servers, why pay much attention to it? It's not like the microcomputer industry pays that much attention to NT's competitors such as UNIX or IBM's AS/400 computers. Although server operating systems are, in fact, very important to large and mid-sized companies, they are understood by only a small number of people within those companies. The things that are most important to those people are pretty much invisible to most microcomputer users.

Even if the grand and glorious client/server future that many people in the UNIX industry dream of comes to pass, most people won't know much of anything about the servers they are connected to.

Thus, the pre-release hype about Windows NT may prove useless for most of us. However, it does presage the hype for the next major release of Windows (also known as "Chicago"), which Microsoft is just beginning to release to early testers. Unlike NT, Chicago (which will probably start being called Windows 4 soon) is really meant to be a 32-bit, single-user operating system. The early releases have interesting visual changes from v3.1, and it is likely that most Windows programs will run in the full 32-bit mode by the time it comes out a year or more from now. If NT disappears from the general user's view, it will be interesting to see how Microsoft keeps the publicity momentum going for Windows. ■

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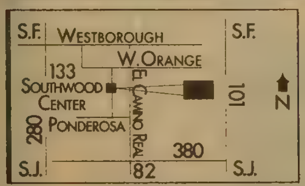

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The Dow Jones Industrial Average traded in a narrow range during the month-long period ended September 17th. The reasons: weaker earnings estimates for the third-quarter and the implementation of the new corporate tax law. The Dow Jones Industrial Average inched forward 7.27 points, or .2%, before calling it quits at 3613.25.

The MicroTimes Stock Index, however, was hit harder than the Dow, decreasing 52.03 points, or 1.22%, to close at 4212.67. Declining issues outweighed advancing issues by a 20 to 11 count with 2 companies reaching new 52-week lows.

Following the lead of the MicroTimes Stock Index, Borland International Inc. lost $6.00, or 30%, during the period, and became the largest percentage loser of the lot. Borland finished the month at $14.00. In a recent news release, Goldman, Sachs & Co. analyst, Richard Sherlund lowered his rating on Borland to "market performer" from "moderate outperformer." Mr. Sherlund's estimate on Borland was also cut to 10 cents a share from 20 Cents a share as previously expected. Borland officials cited slower sales and a buildup of inventory among dealers for the lower estimated.

Advanced Micro Devices inc. accompanied Borland in its downward direction, losing $2.25, or 7.11%, before a closing price of $29.38. Company representatives have admitted that the independently developed 486SX chip is built with Intel's 486 chip in mind. About 600 to 700 microcode lines out of 3300 copy Intel's 386 design. The rights awarded to Advance Micro Designs by an arbitrator to copy Intel's 386 design were rescinded in June of this year.

Pacific Bell bucked the trend of the MicroTimes Stock Index and added $2.75, or 5.3%, onto its price, before closing at $54.63. Pacific Bell announced that it will reduce the price of its local area toll calls by 40 to 60 percent. The price cut is the largest in company history and will be effective January 1, 1994.

Symantec Corp. was another gainer in the accompanying chart, rising $3.50, or 23.73%, before coming to rest at $18.25. Symantec Corp. took the largest percentage gained honor for the month. In a recent new release, Montgomery Securities analyst Betty Lyter raised her rating on Symantec to "buy" from "hold." Separately, Symantec has signed an agreement to acquire Fifth Generation Systems Inc. for 2.8 million shares of its own common stock. ■

| EXCH | COMPANY | TICKER SYMBOL | CLOSING PRICE 08/23/93 | CLOSING PRICE 09/17/93 | NET CHANGE IN MONTH | PERCENT CHANGE IN MONTH | P/E RATIO | ANNUAL DIVIDEND RATE | ANNUAL DIVIDEND YIELD | ANNUAL HIGH | ANNUAL LOW |
|---|---|---|---|---|---|---|---|---|---|---|---|
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| OTC | Adobe | ADBE | 22.13 | 16.50 | –5.63 | –25.42 | 17 | 0.20 | 1.21 | 37.00 | 12.63 |
| OTC | Aldus | ALDC | 17.38 | 19.25 | 1.88 | 10.79 | 74 | 0.00 | 0.00 | 20.75 | 10.25 |
| OTC | Autodesk | ACAD | 45.50 | 48.13 | 2.63 | 5.77 | 22 | 0.48 | 1.00 | 56.75 | 38.75 |
| OTC | Borland (L) | BORL | 20.00 | 14.00 | –6.00 | –30.00 | – | 0.00 | 0.00 | 42.00 | 13.75 |
| OTC | Informix | IFMX | 20.75 | 18.50 | –2.25 | –10.84 | 24 | 0.00 | 0.00 | 27.25 | 9.63 |
| OTC | Lotus | LOTS | 35.50 | 38.25 | 2.75 | 7.75 | 31 | 0.00 | 0.00 | 40.13 | 14.75 |
| OTC | Microsoft | MSFT | 77.00 | 76.00 | –1.00 | –1.30 | 24 | 0.00 | 0.00 | 98.00 | 70.38 |
| OTC | Novell | NOVL | 20.13 | 19.00 | –1.13 | –5.59 | – | 0.00 | 0.00 | 35.25 | 17.63 |
| OTC | Oracle (H) | ORCL | 54.75 | 52.63 | –2.13 | –3.88 | 54 | 0.00 | 0.00 | 56.88 | 18.63 |
| OTC | Software Publishing | SPCO | 7.00 | 6.75 | –0.25 | –3.57 | – | 0.00 | 0.00 | 14.50 | 5.50 |
| OTC | Symantec | SYMC | 14.75 | 18.25 | 3.50 | 23.73 | – | 0.00 | 0.00 | 18.63 | 5.88 |
| | **HARDWARE** | | | | | | | | | | |
| OTC | Apple (L) | AAPL | 28.38 | 25.25 | –3.13 | –11.01 | 18 | 0.48 | 1.90 | 65.25 | 23.50 |
| OTC | AST Research | ASTA | 15.13 | 15.25 | 0.13 | 0.83 | – | 0.00 | 0.00 | 24.25 | 12.75 |
| NYS | Commodore | CBU | 3.50 | 3.25 | –0.25 | –7.14 | – | 0.00 | 0.00 | 9.25 | 2.50 |
| NYS | Compaq | CPQ | 53.75 | 57.63 | 3.88 | 7.21 | – | 0.00 | 0.00 | 61.75 | 31.00 |
| NYS | Digital Equipment | DEC | 38.88 | 38.63 | –0.25 | –0.64 | – | 0.00 | 0.00 | 49.25 | 30.38 |
| OTC | Dell | DELL | 18.75 | 17.00 | –1.75 | –9.33 | 15 | 0.00 | 0.00 | 49.88 | 13.50 |
| NYS | Hewlett-Packard | HWP | 74.38 | 67.88 | –6.50 | –8.74 | 18 | 1.00 | 1.47 | 89.25 | 50.25 |
| NYS | IBM | IBM | 44.38 | 43.38 | –1.00 | –2.25 | – | 1.00 | 2.31 | 84.63 | 40.63 |
| NYS | Silicon Graphics (H) | SGI | 39.50 | 38.50 | –1.00 | –2.53 | 32 | 0.00 | 0.00 | 41.00 | 17.63 |
| OTC | Sun Microsystems | SUNW | 26.75 | 26.00 | –0.75 | –2.80 | 17 | 0.00 | 0.00 | 41.00 | 24.00 |
| NYS | Xerox | XRX | 72.88 | 71.75 | –1.13 | –1.54 | – | 3.00 | 4.18 | 88.88 | 70.25 |
| NYS | Tandy (H) | TAN | 29.25 | 35.88 | 6.63 | 22.65 | 20 | 0.60 | 1.67 | 36.38 | 24.63 |
| | **CPU'S** | | | | | | | | | | |
| NYS | Advanced Micro Devices | AMD | 31.63 | 29.38 | –2.25 | –7.11 | 12 | 0.00 | 0.00 | 32.88 | 10.63 |
| OTC | Intel | INTC | 64.25 | 64.25 | 0.00 | 0.00 | 16 | 0.20 | 0.31 | 67.25 | 30.38 |
| NYS | LSI Logic | LSI | 18.13 | 17.63 | –0.50 | –2.76 | – | 0.00 | 0.00 | 19.25 | 5.38 |
| NYS | Motorola | MOT | 96.13 | 91.75 | –4.38 | –4.55 | 34 | 0.44 | 0.48 | 99.13 | 41.38 |
| | **COMMUNICATIONS** | | | | | | | | | | |
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| NYS | BellSouth Corp. (H) | BLS | 54.13 | 61.75 | 7.63 | 14.09 | 19 | 2.76 | 4.47 | 62.88 | 46.75 |
| OTC | MCI | MCIC | 27.38 | 28.50 | 1.13 | 4.11 | 23 | 0.04 | 0.14 | 29.88 | 16.81 |
| NYS | Northern Telecom | NT | 26.25 | 25.63 | –0.63 | –2.38 | – | 0.36 | 1.40 | 46.00 | 21.38 |
| NYS | Pacific Telesis (H) | PAC | 51.88 | 54.63 | 2.75 | 5.30 | 26 | 2.16 | 3.95 | 56.50 | 39.50 |

KEY: NYS = NEW YORK ASE = AMERICAN OTC = OVER THE COUNTER
(H) = NEW HIGH REACHED IN PERIOD (L) = NEW LOW REACHED IN PERIOD

**MARKET DIARY:**

| | |
|---|---|
| ADVANCES | 11 |
| DECLINES | 20 |
| UNCHANGED | 1 |
| NEW HIGHS | 5 |
| NEW LOWS | 2 |

**MOST ACTIVE ISSUES:**

| | | | |
|---|---|---|---|
| LARGEST DOLLAR GAINER | BellSouth Corp. | $ | 7.63 |
| LARGEST DOLLAR LOSER | Hewlett-Packard | $ | –6.50 |
| | | | |
| LARGEST PERCENTAGE GAINER | Symantec | | 23.73 % |
| LARGEST PERCENTAGE LOSER | Borland | | –30.00 % |

| | CLOSE 08/23/93 | CLOSE 09/17/93 | NET CHANGE IN MONTH | PERCENT CHANGE IN MONTH |
|---|---|---|---|---|
| MICROTIMES STOCK INDEX | 4264.70 | 4212.67 | –52.03 | –1.22 |
| DOW JONES INDUSTRIAL AVERAGE | 3605.98 | 3613.25 | 7.27 | 0.20 |
| STANDARD & POOR'S 500 STOCK INDE | 455.23 | 458.83 | 3.60 | 0.79 |
| N.Y.S.E. COMPOSITE | 252.91 | 254.66 | 1.75 | 0.69 |
| NASDAQ COMPOSITE | 730.86 | 740.11 | 9.25 | 1.27 |

| CLOSING QUOTES FOR GRAPH: | | |
|---|---|---|
| DATE | MICRO TIMES | DOW JONES |
| 03/04/93 | 4127.80 | 3398.91 |
| 04/01/93 | 4196.89 | 3439.44 |
| 04/29/93 | 4074.63 | 3425.12 |
| 05/27/93 | 4554.50 | 3554.83 |
| 06/24/93 | 4266.52 | 3490.61 |
| 07/22/93 | 4072.42 | 3525.22 |
| 08/23/93 | 4264.70 | 3605.98 |
| 09/17/93 | 4212.67 | 3613.25 |

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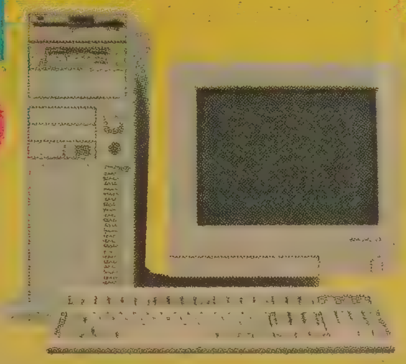

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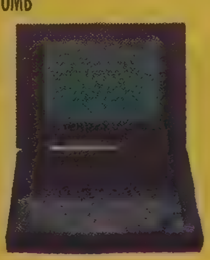

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# Electronic Pennies For Electronic Information

## *Plus An AB1624 Update*

**BY JIM WARREN**

**This column concerns what isn't, but could be—as soon as any of us do it.**

### FREE? INFORMATION

There are perhaps terabytes of information now freely available to anyone via the global Internet—often free; sometimes costing a connect-time charge, typically under $20/month. It comes from sources with a long tradition of freely sharing information—academic institutions, nonprofit research organizations, government agencies, libraries, and some corporations. (terabyte = 1000 gigabytes; gigabyte = 1000 megabytes.)

**REALIZABLE FANTASIES**

Some folks say this free sharing can't last—that it's a (brief) Utopian Age of Information. They say the information's too valuable to be shared "merely" for great mutual and societal benefit. (And how can government tax "mutual benefit"?)

There are numerous organizations that may dislike this free and almost-free information. They'd much prefer to charge big bux for it, as many now do. They include government-granted telephone monopolies and (functional) cable monopolies that want to provide information, charging by the byte and by the minute—priced comparably to $3/minute 900-number services. Some newspapers are wildly opposed to information distribution by phone and cable companies—unless they own 'em—but are equally opposed to any suggestion that sharing news stories via their membership in the Associated Press is a comparable monopoly action.

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Instead of high-priced access-for-the-wealthy, how 'bout a cheaper info-spread?

### NET IS NO THREAT TO REPORTERS OR EDITORS

Reporters are often concerned that paperless electronic newspapers—electronic publication of information—via the computer nets will threaten their jobs. Not so—at least not for those who do reporting worth payment.

Someone still has to research stories, write them in readable form, and do so with a level of integrity that earns readers' trust.

Maybe reporters will need to work for (paperless) newspapers—and maybe they won't. The nets can make it easy to self-publish and free-lance.

And, as "too much" data becomes available, readers need net-surfing editors whom they can trust to ferret out tidbits they'd like to see. Some editors will be like newspaper editors—patching together articles based on *their* opinion of what's "interesting." Others will be "user-programmable"—actually researchers or current-events librarians—who know where to look for items of interest, creating daily newsfeeds customized to each of their individual clients' tastes.

There will need to be "publishers," but they can be as simple as fluctuating consortia of independent writers—with turnover even more rapid than newsroom interns. Musicians' ASCAP and screenwriters' WGA offer starting-point models.

### DIRECT PAYMENT TO EDITORS, RESEARCHERS, REPORTERS

Across the computer nets, we need a financial/payment infrastructure that can electronically assure payment to information originators *and* to those who excerpt, abstract, summarize, update, research, report, edit, customize, and distribute information. (If you thought look-'n'-feel litigation was lunacy and software patents were a mess, just wait 'til you see the copyright-infringement zoo this will create.)

Like our pocket-money system, it needs to handle purchases costing as little as 1¢ to 25¢, as well as arbitrarily larger denominations. Then, individuals can afford to buy the electronic counterparts of newspaper sections—sports, international, local, entertainment, etc.

Ted Nelson's old *Computer Lib/Dream Machines* and his someday Xanadu Project addressed payment issues, as did AMIX, the American Information Exchange—a small free-market company struggling in Palo Alto. But both leaned on requiring information sources and information sinks to connect through a single online system or library.

Given the existence and explosion of the present nets, and the need for global source and sink diversity, we need electronic banks or treasuries that can be trusted to receive deposits and disburse payments—from 1¢ on up—but charge much less than 3–24% per transaction. They could issue crypto-protected electronic script. Someone suggested calling the first one the First Internet Bank.

(If you think Big Brother is upset over using secure cryptography to protect private communications from surveillance, just think of how horrifying this prospect must be—to the IRS, DEA, FDIC, Bank Examiners, etc.—especially given that it could be operational across national borders.)

The genesis of this idea came from a conversation with Menlo Park's John Nagle.

### LESSONS LEARNED FROM 'LECTRONIC LEGISLATION

At press deadline, AB1624 is awaiting Gov. Pete Wilson's approval or veto. This is the California legislation that would make all

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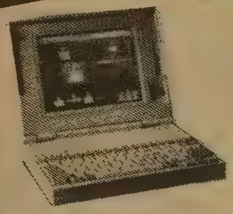

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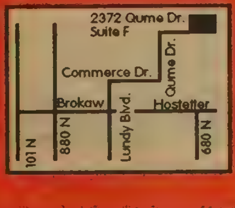

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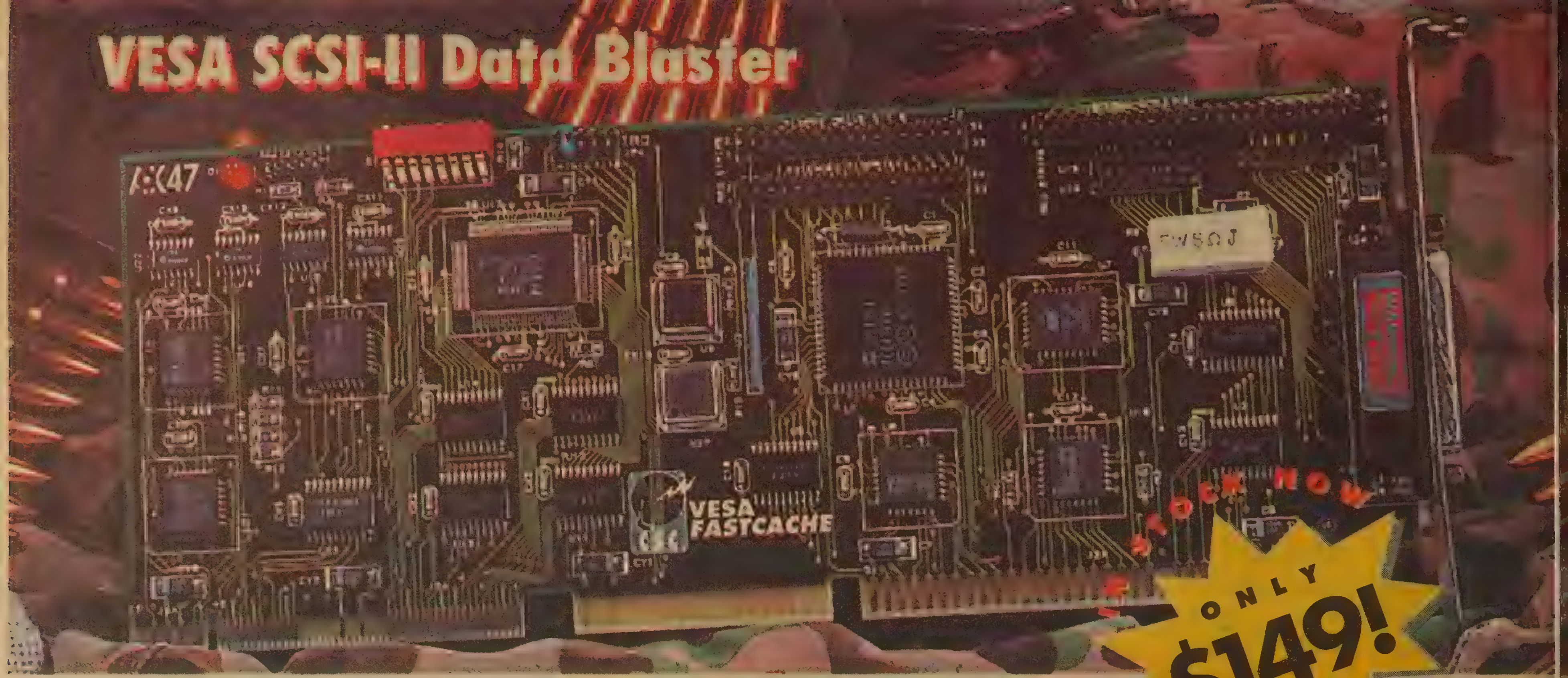

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public legislative information available, without charge by the state, in a timely manner, statewide (and globally), via the public computer networks (Internet, Fidonet, etc.). Status:

•Thanks *exclusively* to repeated mass action by interested citizens and organizations throughout the state—mostly prompted by net-based updates and action alerts—this bill *unanimously* passed each of four committees and three floor votes in the California Legislature.

•It suffered only a few irritating amputations of less-essential features at the hands of surgeon David Roberti (D-Los Angeles) and his obedient Senate Rules Committee. E.g., he deleted from the legislation a requirement that electronic copies of bills and amendments include the formatting information necessary to reproduce, on our laser printers, their typeset/printed form. In the process, he tossed out the page and line numbers that appear in paper copies. On the other hand, Roberti coulda killed the bill.

•The Legislative Data Center—which will provide public online access if the bill is signed into law—could add the page and line numbers; net volunteers have already programmed it with test data. If they don't implement such equality of paper and electronic information, there will undoubtedly be numerous complaints to legislators about their embarrassing inability to do what private-sector volunteers did in their spare time.

•More than seventy organizations and eleven hundred individuals formally support AB1624—publishers, public-interest groups, students, educators, parents, environmental and business organizations, library associations, disabilities groups, cities, counties, etc.

•Only one opponent appeared—two days before the final vote approving the bill. It was Legi-Tech—a subsidiary of McClatchy Newspapers, which owns the *Sacramento Bee* and *Fresno Bee*, among others. Legi-Tech sells this public legislative information; $175/hour without a long-term contract.

•Governor Wilson has until October 10th to act. Unless he vetoes it by then, it becomes law, effective January 1, 1994.

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*Warren founded* InfoWorld, *Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's* Computer Chronicles, *founding editor of* Dr. Dobb's Journal, *and has chaired various trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics & statistics. He has been a computer professional since 1968, and was a mathematics teacher and professor for ten years before that.*

*He organized and chaired the landmark First Conference on Computers, Freedom & Privacy (1991) and was one of the first to receive the Electronic Frontier Foundation Pioneer Award (1992). He is a member of the board of directors of Autodesk, Inc.*

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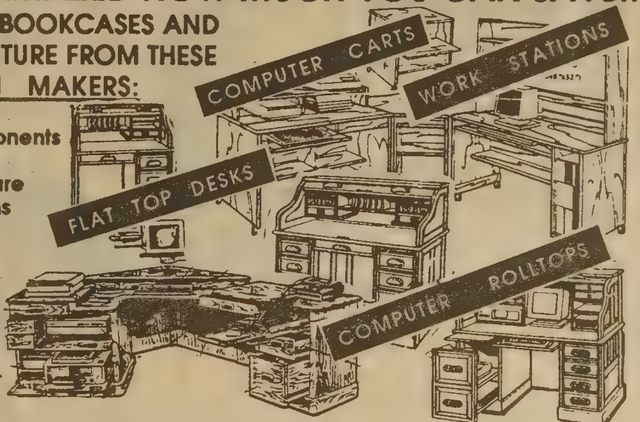

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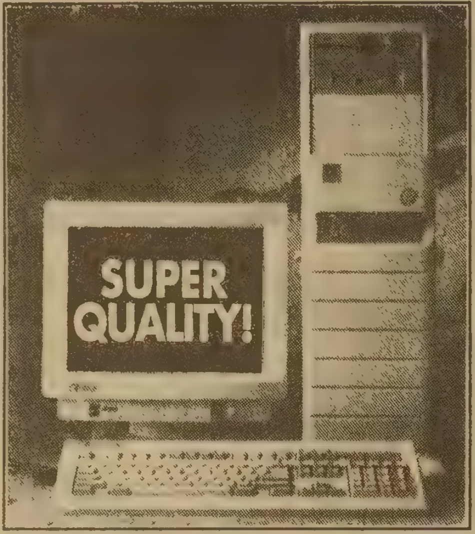

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- 101 Enhanced Keyboard

**For More Options, Please Call**

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**486DX2-50 MHz**
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**486DX-33 MHz**
**$1115**

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- I/O 2 Serial/1 Parallel/ 1 Game
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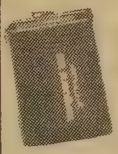

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## MOTHERBOARD

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| NICE EISA 486-33/50/66. | CALL |
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| AMI VLB 486-20/25/33/50/66 | CALL |
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| JOINDATA 386DX-33/40 | CALL |
| JOINDATA 386SX-25/33 | CALL |

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| 40 MB (IDE) | $139 |
| 80 MB (IDE) | 155 |
| 170 MB (IDE) | 205 |
| 250 MB (IDE/SCSI) | 275/320 |
| 340 MB (IDE/SCSI) | 305/405 |
| 500 MB (IDE/SCSI) | CALL |
| 1.2 GIGA | CALL |

## NETWORKING

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| NE1000 Clone (COAX) | $69 |
| NE2000 Clone (COAX/TP) | 85/95 |
| NE2000 Combo Clone | 110 |
| Intel EtherExpress COAX/TP | 135/145 |
| SMC Etherlink II | 165 |
| LANtastic Software | CALL |
| Novell NetWare 4.0 | CALL |

## VIDEO CARDS

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| MGP | $12 |
| Trident SVGA w/1MB | 60 |
| Tseng SVGA w/1 MB | 80 |
| Tseng VLB w/1 MB | 109 |
| Genoa VLB w/1 MB | 129 |
| Orchid Pro IIs w/1 MB | 139 |
| Fahrenheit w/1 MB | 139 |
| Fahrenheit w/1 MB VLB | 150 |
| Fahrenheit P9000 VLB | CALL |
| Diamond Stealth 24 w/1 MB | 189 |
| Diamond Stealth 24 VLB w/1 MB | CALL |
| ATI Winder XL 24X w/1 MB | 156 |
| ATI Vantage 1 MB w/Mouse | 235 |
| ATI Ultra Pro VLB w/2 MB | 359 |

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| Full Tower w/250W PS | $110 |
| Black Full Tower w/250W PS | 160 |
| Mid Tower w/230W PS | 89 |
| Black Tower w/200 PS | 98 |
| Black Mini Tower w/200W PS | 75 |
| Baby Desktop w/200W PS | 60 |

## MONITORS

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| 14" Monochrome | $98 |
| 14" VGA Mono | 125 |
| 14" SVGA .39 | 239 |
| 15" SVGA .28 | 259 |
| 14" SVGA .28 NI | 285 |
| 14" Black SVGA .28 | 295 |
| 14" Black SVGA .28 NI | 350 |
| 14" ViewSonic 6E .28 | 325 |
| 14" ViewSonic 5E .28 | 399 |
| 14" ViewSonic 5+ .25 | 509 |
| 14" Sony 1304 .25 | 560 |
| 15" ViewSonic 6FX | 570 |
| 15" NEC 3FGE | CALL |
| 15" NEC 4FGE | CALL |
| 17" ViewSonic 7 | CALL |
| 17" NEC 5FGX | CALL |
| 20" ViewSonic 8 | CALL |
| 20" NEC 6FG | CALL |
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|---|---|
| 1.2 MB FDD | $55 |
| 1.44 MB FDD | 52 |
| IDE w/ I/O | 17 |
| 2400 B Modem | 45 |
| 9600/2400 FAX/Modem | 75 |
| 120 MB Tape Back-Up | 158 |
| 250 MB Tape Back-Up | 239 |
| 101 Keyboard | 35 |
| 101 Black Keyboard | 40 |

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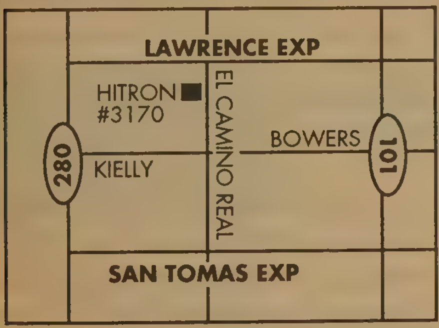

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# BUSINESS SOLUTIONS

# On The Road: Notebook/Palmtop Tradeoffs

## *Plus: Newton News; Faster, Smaller Modems*

**BY MITSU HADEISHI**

## PENS AND PALMTOPS

### RESOURCES:

**Apple Newton and related products**
Apple Computer, Inc.
2055 Mariani Ave.
Cupertino, CA 95014
(408)996-1010

**Casio Executive B.O.S.S. SF-R20**
Casio, Inc.
1-800-762-1241

**Dyno Notepad for the Apple Newton**
Portfolio
10062 Miller Ave.
Ste. 201
Cupertino, CA 95014
(408)252-0420
1-800-729-3966
PORTFOLIO@AppleLink.COM
CompuServe:
75300,520

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This month I spent a week on the road, taking my palmtop (a Casio SF-R20) and a notebook computer (a TI Win486SX with a passive color LCD display) along with me on a business trip. The different uses to which I found myself putting the two machines were illustrative of the different niches they occupy.

Along the way I also got a chance to play with the new Apple Newton PDA, and I will mention briefly my impressions later in the column.

### COMPUTER CAMPING

At one point on our trip we happened to hit nightfall in a very beautiful part of the country, and so we decided to camp out instead of spend the money on a motel. We were going to have a planning meeting the next day in a park, and we thought it might be nice to have the laptop charged up so we could take notes.

Most campgrounds have some sort of electrical hookups for RVs; those of you who camp in tents next to your car can also take advantage of these hookups by simply using an inexpensive $4 converter, which inserts into the rather oddly shaped RV power jack and provides a normal home AC power socket, into which you can plug your regular appliances. An electrical hookup for your campsite can usually be had for just a nominal charge.

### Bright Lights, Small City

The next day we found ourselves in a quaint town with a beautiful park, in which we began to have our planning meeting.

This is when we realized that the passive color LCD screens were well-nigh unreadable when sitting in the sunlight. The brighter the surrounding light, the more unreadable the display. Though it was (barely) readable in the shade, it was not very pleasant to try to see.

So I whipped out my little palmtop and began to take notes on it. The palmtop uses a different kind of LCD display, one which relies on the surrounding ambient light instead of a built-in back light, so the brighter it gets outside, the easier it is to read the display. As it turns out, the palmtop was more usable for outdoor note-taking than was the notebook computer.

### REMOTE CONNECTIVITY

That night, in a motel room, we wanted to log in and check our email. Many motel rooms these days use modular jacks for their phones; this particular motel, though it was one of the cheapest we could find in the area, also used a modular jack. It was no trouble at all plugging in the modem, though I found it easier to dial manually using the phone, then use the "ATD" command to have the modem connect with the remote machine once it answered. The reason for this is that there is often a long delay between hitting the "9" or "8" to dial out and getting a dial tone, so it was simply less hassle to dial manually than to make the modem pause long enough.

For this job the notebook computer is superior to the palmtop, since it has a full-sized keyboard and a full-sized screen. This made it much easier to use, and the storage capacity was also more amenable to downloading and uploading information. So, for the purpose of remote email, notebooks are a good fit for the job, particularly since you don't need the ultraportability when you're in a motel or hotel room.

### BIG MEETING, SMALL NOTEPAD

The next day we had an indoor meeting, in a traditional conference room. In such a setting even the relatively small notebook computer we had brought with us seemed too bulky. Leaving open the little palmtop in front of me, however, was quite unobtrusive, and it was possible to take notes without disturbing the flow of the meeting.

### NEWTONIAN PENMANSHIP

Also on this same trip I got a chance to play with the new Apple Newton PDA. After hearing various (mostly bad) rumors about the Newton's handwriting recognition capabilities, I was anxious to find out for myself how usable it was. The impression I got was quite good; far superior, in fact, to the performance I had found using Windows for Pens and other vertical-market pen-based computers.

The biggest difference between the Newton's handwriting recognition and that of other pen-based operating systems is that the Newton recognizes entire words, not just single letters at a time. This allows the Newton to use contextual information to determine what you're writing; rather than arbitrarily inserting random characters into your text, it either gets the whole word, or it fails completely. This is actually much preferable to the "95% accuracy" of other handwriting recognizers, since the errors are not peppered throughout your text in the form of misrecognized letters buried deep inside words, where they are inconvenient to get at and correct.

Problems I had had using Windows for Pens—e.g. the unit getting confused between the numeral "5" and the letter "S"—were not a problem for the Newton. Remarkably, it seemed to recognize

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| REGULAR MODEL | $789 |

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| MAC IIVX/5/80/CD | $1189 |
| MAC IIVX/4/230 | $1298 |
| MAC CENTRIS 610/8/230 | $1795 |
| MAC CENTRIS 610/8/230/CD | $1963 |
| MAC CENTRIS 650/8/230 | $2107 |
| MAC CENTRIS 650/8/230/CD | $2428 |
| MAC CENTRIS 650/8/500 | $2657 |
| MAC CENTRIS 660AV/8/230 | $2105 |
| MAC CENTRIS 660AV/8/230/CD | $2365 |
| MAC CENTRIS 660AV/8/500 | $2656 |
| MAC CENTRIS 660AV/8/500/CD | $2919 |
| MAC QUADRA 840AV/8/230 | $3291 |
| MAC QUADRA 840AV/8/230/CD | $3559 |
| MAC QUADRA 840AV/16/500 | $4109 |
| MAC QUADRA 840AV/16/500/CD | $4408 |

### APPLE POWERBOOKS

| | |
|---|---|
| APPLE POWERBOOK 165/4/80 | $1777 |
| APPLE POWERBOOK 165/4/160 | $2098 |
| APPLE POWERBK 165/4/160 mdm | $2328 |
| APPLE POWERBOOK 165C/4/80 | $1715 |
| APPLE POWERBOOK 165C/4/120 | $1957 |
| APPLE POWRBK 165C/4/120 mdm | $2182 |
| APPLE POWERBOOK 180/4/80 | $2339 |
| APPLE POWERBOOK 180/4/120 | $2582 |
| APPLE POWERBK 180/4/120 mdm | $2807 |
| APPLE POWRBK 180C/4/80 33mhz | $2919 |
| APPLE POWERBOOK 180C/4/160 | $3203 |
| APPLE POWRBK 180C/4/160 mdm | $3429 |

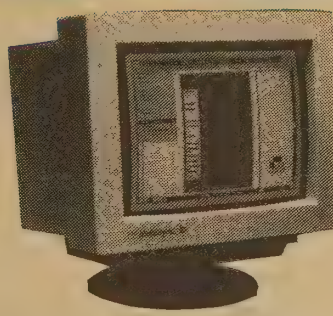
### APPLE PERIPHERALS

| | |
|---|---|
| APPLE 16" RGB DISPLAY | $1174 |
| LASERWRITR PRO 600/8MB/TNR | $1769 |
| LASERWRITR PRO 630/8MB/TNR | $2252 |

## TOSHIBA

| | |
|---|---|
| T1900, 4MB, 120MB HD | $1764 |
| T1900, 4MB, 200MB HD | $2,023 |
| T1900C, COLOR, 4MB, 120MB HD | $2410 |
| T1900C, COLOR, 4MB, 200MB HD | $2,668 |
| T1950, 486DX2/40, 4MB, 120MBHD | $2,152 |
| T1950, 486DX2/40, 4MB, 200MBHD | $2,410 |
| T1950CS, COLOR, 4MB, 120MB HD | $2,755 |

## NEC



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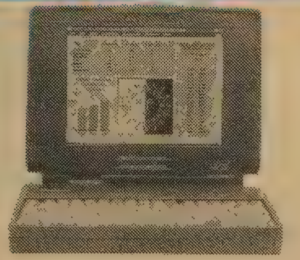
|---|---|
| NEC 3 FGE MONITOR | $599 |
| NEC 4 FGE MONITOR | $716 |
| NEC 5 FG MONITOR | $1,289 |
| NEC 6 FG MONITOR | $2,369 |
| NEC SILENTWRITER MDL 95 | $896 |

## COMPAQ



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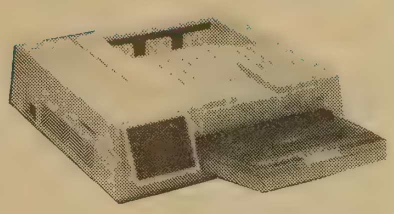
|---|---|
| CPAQ LTE LITE/25C/120MB | $3,255 |
| CPAQ LTE LITE/4/33C/120MB | In Stock |
| CPAQ LTE LITE/4/33C/209MB | CALL |
| CPAQ PROLINEA/4/33/120MB | $1,570 |

## OKIDATA

OKIDATA OL400E 4ppm, 300dpi $511



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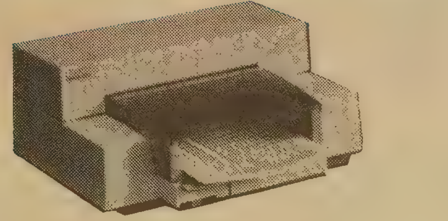
|---|---|
| OKIDATA ML520 9-PIN 80 COL | $363 |
| OKIDATA ML320 9-PIN 80 COL | $302 |
| OKIDATA ML321 9-PIN 132 COL | $423 |

## HEWLETT-PACKARD



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|---|---|
| HP OMNIBOOK 300/2/10FLSH | $1798 |
| HP OMNIBOOK 300/2/40MBHD | $1575 |
| HP SCANJET IIP W/PC-AT INTFC | $689 |
| HP SCANJET W/MAC INTFC | $689 |
| HP SCANJET IIC/COLOR F/PC | $1,054* |
| HP SCANJET IIC/COLOR F/MAC | $1,054* |
| HP DESKWRITER INKJET F/MAC | $289 |
| HP DESKJET 500 INKJET 2 PPM | $289 |
| HP DESKJET 550C COLOR INKJET | $569 |
| HP DESKWRITER 550C CLR/2 PEN | $569 |
| HP DESKJET 1200C PRINTER | $1,332 |
| HP DESKJET 1200C/PS POSTSCPT | $1,881 |
| HP DESKWRITER C COLOR F/MAC | $384 |
| HP DESKJET 500C COLOR F/PC | $384 |
| HP DESKJET PORTABLE INKJET | $322 |
| LASERJET 4/8PPM/600DPI | $1,349 |
| LASERJET 4M/8PPM/600DPI | $1,881 |
| HP LASERJET 4L | $659 |
| HP LASERJET 4ML,POSTSCRIPT | $899* |
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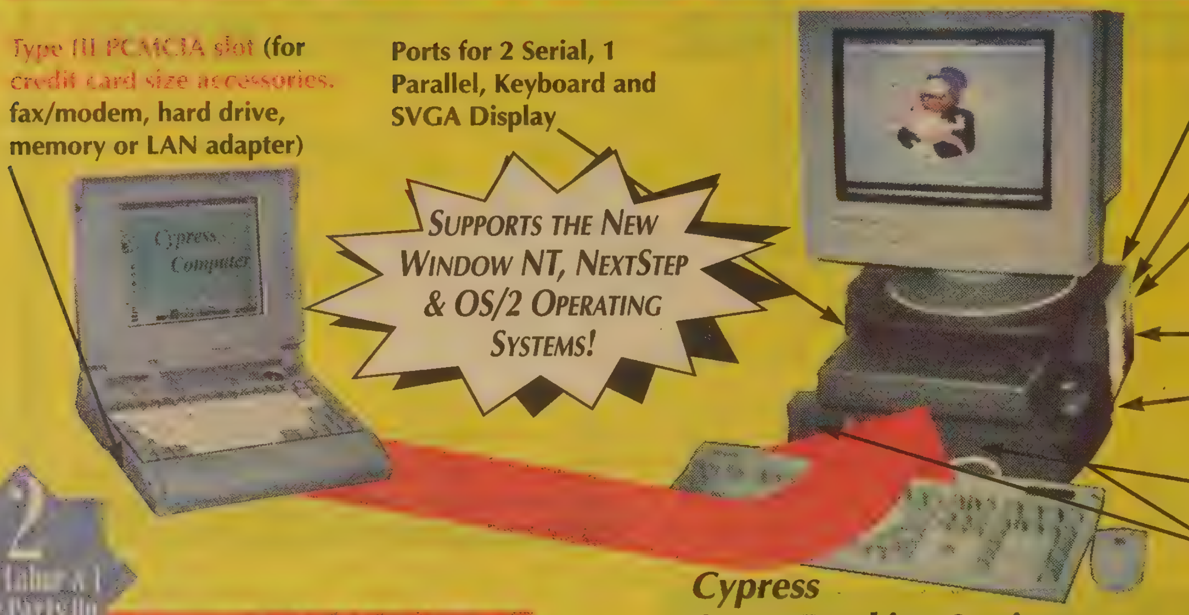

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## Cypress 820 Notebook

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- 32-Bit [illegible]
- 128K Secondary Cache (optional)
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- 4MB RAM, Expandable to 8, 12, 16, or 20MB
- 1.44MB floppy drive
- 120MB hard drive (200, 252, or 340MB optional)
- Built-in trackball
- Carrying case, battery adapter
- 11" x 8.6" x 1.9", 6.6lbs

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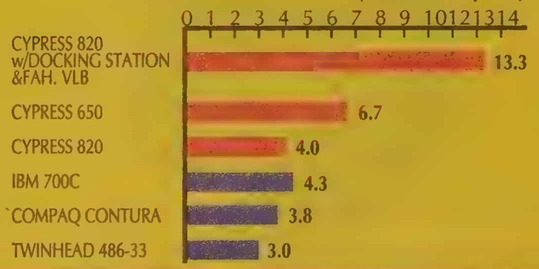

| Model/CPU | 820M Mono | 820S Dual Scan Color | 820T Active Color |
|---|---|---|---|
| 486SX-25 | $1790 | $2540 | $3415 |
| 486DX-33 | $1950 | $2700 | $3575 |
| 486DX2-66 | $2245 | $2950 | $3845 |
| Super Docking Station | $530 | | |

## Cypress 650 Notebooks

- Local Bus VGA Display & Local Bus IDE
- 120MB hard drive (200, 252, or 340MB optional)
- 1.44MB floppy drive
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**Upgradable screen & upgradable speed!**

| Model / CPU | 650M Mono | 650P Passive Color | 650T Active Color |
|---|---|---|---|
| 486DX-33 | $1898 | $2600 | $3475 |
| 486DX2-66 | $2148 | $2850 | $3725 |

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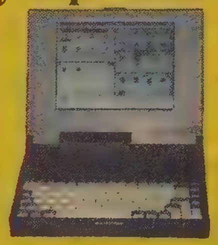

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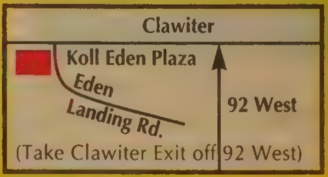

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## RESOURCES:

FARALLON@AppleLink.COM

**Hayes Optima PCMCIA modems**
Hayes Microcomputer Products, Inc.
5835 Peachtree Corners East
Norcross, Georgia 30092-3405
(404)840-9200

**Intel Wireless Modem**
Intel Corporation
1-800-538-3373

**Lotus cc:Mail**
Lotus
1-800-448-2500

**Microsoft Mail Remote for Windows**
Microsoft Corporation
1-800-227-4679

**Psion 3a**
Psion, Inc.
Watertown, CT
(203)274-7521

**SmartExchange low power PCMCIA fax modems**
SMART Modular Technologies
45531 Northport Loop West,
Bldg. 3B
Fremont, CA 94538
(510)623-1231

numbers and words quite accurately, rarely confusing the two—one of the annoyances with Windows for Pens. Though at first it had some trouble with my lowercase t's, I managed to get it to recognize them after adjusting my handwriting slightly.

It is true that the Newton is not capable of recognizing just anyone's handwriting. You sometimes have to adjust to it, even though it is supposed to adjust to you. The unit does attempt to learn the handwriting styles of the individual user, but there is only so much it can do to recognize each person's different handwriting. However, it is generally possible to get pretty good performance out of it by simply making some minor adjustments to your writing style. This was *not* the case with Windows for Pens; no matter how hard I tried, I could not get it to reliably distinguish a period from a lowercase "i" or a short dash, for example, and Windows for Pens makes no effort to use contextual information to disambiguate letters. Overall, if you train yourself just as much as you try to train the Newton, it should be generally easier to use than the other single-character-based recognition systems.

### DEMO OR DIE

On this same trip I also happened to wander into a computer store with a big Newton display. Curious, I went over to the demo machine and tried to use it. Unfortunately, it was in some sort of "demo" mode which did not allow you to actually play with the handwriting recognition. All it did was let you write a couple of words ("Apple," I think, and perhaps "hello"). This makes it next to impossible to really evaluate the accuracy of the handwriting recognition. It might be nice if the "next rev" of the demo Newtons allowed a bit more user experimentation.

### DYNO NOTEPAD FOR THE APPLE NEWTON

Dyno Notepad is a free-form outlining and writing tool for the Apple Newton MessagePad PDA. Due dates and other notes can be added to notes and topics, and outlines can be labeled with bullets, triangles, and checkmarks. Dyno Notepad files on the Newton can link with Mac and Windows Dyno Notepad files, and the application can export to MacWrite, Word, RTF, and ASCII formats.

> **After hearing various (mostly bad) rumors about the Newton's handwriting recognition capabilities, I was anxious to find out for myself how usable it was.**

### NEWTON CALCULATORS

Dubl-Click Software, Inc. has announced a multiple calculator application for the Apple Newton, called GoFigure. The software includes over a dozen different calculators, including special-purpose calculators for cooking unit conversions, sales tax, film editing computations, and calculus problems. The program includes fifteen different display modes, for example, scrolling paper tape.

### FARALLON SUPPORTS APPLE NEWTON

Farallon Computing, Inc., a major supplier of networking hardware and software for Apple computers, has announced support for the Newton MessagePad PDA.

Using the AppleTalk software provided with the Newton, the Newton's built-in high-speed serial port can be used to support LocalTalk network connectivity, such as using shared printers and other network resources.

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Farallon is providing both hardware and software support for Newton devices. For example, using Farallon's PhoneNET Connector or its miniature PhoneNET StarConnector, a Newton MessagePad user can connect directly to a LocalTalk network. Once networked, the Newtons can connect to Macintoshes running Newton Connection software and print to shared laser printers on the LocalTalk network. In addition, a Macintosh running Farallon's PowerPath software can act as a bridge between a Newton and an Ethernet or Token Ring network. The Newton connects to a Macintosh running PowerPath, and the Macintosh can then connect the Newton to the Ethernet network.

The PhoneNET connector is available now for a retail price of $36.99, and the StarConnector retails for $17.99. PowerPath software is available for $149, and the LocalPath software, providing up to eight LocalTalk connections, retails for $199.

## MOBILE MICROSOFT MAIL

Intel Corporation has announced wireless support for Microsoft Mail Remote for Windows and Lotus cc:Mail. Using an Intel Wireless Modem, users can connect to Microsoft Mail LAN and Lotus cc:Mail servers via the RAM Mobile Data wireless network. The RAM networks provide RF data transmission services in 210 US metropolitan areas.

The Intel Wireless Modem for Microsoft Mail Remote for Windows is priced at $747 retail, and the cc:Mail version is $775 list. Microsoft Mail Remote for Windows is priced at $195. RAM Mobile Data is offering flat-rate unlimited messaging for both Microsoft Mail Remote and Lotus cc:Mail for $75 per modem per month through the end of this year.

## LOW-POWER PCMCIA MODEM

SMART Modular Technologies, Inc., has announced its SmartExchange line of very low power consumption PCMCIA-based fax modems. The modems go to sleep on command, dropping power consumption to less than 2 milliamps. According to SMART Modular, "Comparable modems draw at least 15 milliamps in the sleep mode." Operating power is 50 milliamps, 16% less than the typical 60 milliamps consumed by other PCMCIA modems. The modem can operate at either full power, standby, or sleep mode. The standby mode is entered automatically whenever no data has been transmitted for a user-definable period of time.

These modems come in three models, the $549.99 SmartExchange 1414, a 14.4bps v.32bis v.42bis modem; the $399.99 SmartExchange 9624E, a 2400bps data 9600bps fax modem with both send and receive fax capabilities; and the $299.99 SmartExchange 9624, also a 2400bps data 9600bps fax modem with send-only fax capabilities.

## HAYES PCMCIA OPTIMA

Hayes Microcomputer Products, Inc. has announced that its Optima line of modems is now available in PCMCIA format. The Optima 144 + FAX144 is a PCMCIA Type II card that supports v.32bis and v.42bis operation and synchronous communications via the Hayes AutoSync (allowing connectivity with 3270 and 5250 mainframe terminals). The modem retails for $499. In addition, the Hayes Pocket Edition modem of the same features has been reduced in price to $399.

## PSION 3A

Psion, Inc., has released an updated version of the Psion 3 Organizer, a palmtop device that includes a graphical user interface and a very complete set of tools, including a spreadsheet and a word processor. The new version, called the Psion 3a, includes a more robust keyboard with a better "feel" and a number of minor feature enhancements. ■

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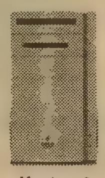

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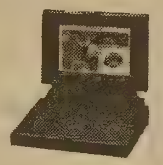

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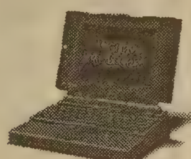

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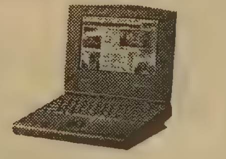

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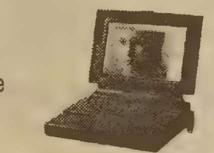

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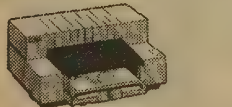

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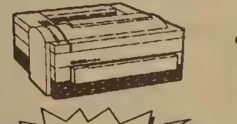

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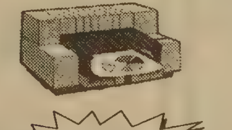

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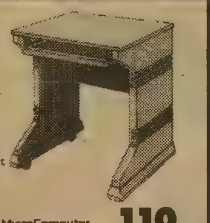

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Designed for notebook-style computers, fully padded computer section, reinforced handle & detachable strap.

**39.**

MOUSE SYSTEMS

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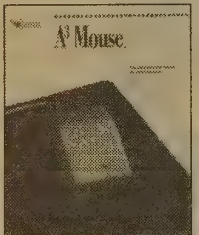

Three buttons provide three times the functionality of other mice. 300 cpi base resolution. Lifetime warranty.

**89.**

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### /0 Professional

HighSpeedI/O
SIIG, Inc.

ni-directional parallel port • 2 serial rts w/16550 high speed UART • econdary serial port addresses • All rts can be disabled. SIIGCF0003

**59.**

COLORADO™ MEMORY SYSTEMS INC

### 250 MB Tape Drive

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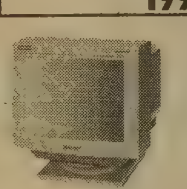
SONY

### CPD 1304S

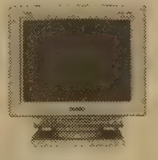


sers of both MS-DOS computers and the Apple® lacintosh® II personal computer family will appreciate the rispness of this.25 dp Super Fine Pitch™ 14" display.

**529.**

SONY

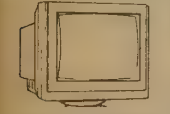
### CPD1730



17" Trinitron Monitor Multiscan • .25 dp. variable requency 30-57 Khz • 1024x768 non-Interlaced • SVGA, GA, 8514A, MacII • Complies with Swedish MPRII emissions.

**1099.**

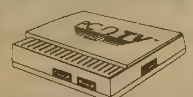
### Mono VGA Monitor



14" paper white • 1024x768 SVGA phics • Economical work station oice. Similar to illustration.

**139.**

SIIG, Inc. PC2TV



• Flicker-free picture on your tv set • Screen auto blanking • Supports high-resolution true color VGA • Simultaneous PC and TV displays • Includes 15 pin VGA cable and S-Video cable
SIIGCF0005

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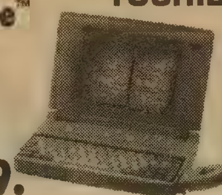
TOSHIBA

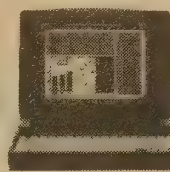


• Fast 486SXA/20MHZ Performance • 4MB RAM Expandable to 20 MB •120MB hard drive 17 millisecond access time • High contrast 9.5" mono VGA display

**1799.**

### Compaq Contura 4/25 Notebook

COMPAQ

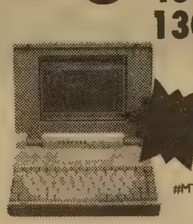


4 MB RAM, 120 MB hard drive, 9.5" micro screen and an Intel 486SL-25MHz processor plus Compaq quality add up to the notebook for the business traveller. DOS 6.0 and Windows 3.1 are preinstalled

**1899.**

MITAC

### 486 SLC-25 MHz 130 HD Notebook



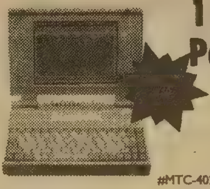
4 MB RAM upgradable to 32 MB, Cyrix 486 CPU, socket math co-processor, 10" LCD 64 shades of gray screen.

#MTC 4028G-130

**1499.**

MITAC

### 486 SX-33 MHz 130 HD Notebook Passive Color



4 MB RAM upgradable to 32 MB, Cyrix 486 CPU, socket math co-processor, 8.5" passive color.

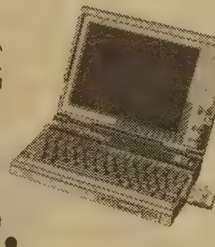
#MTC-4020G/C-130T

**2399.**

### TM4000 120 MB WIN 486SX-25

TEXAS INSTRUMENTS

**Enhaned Passive Color**

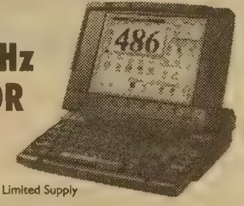


• 640x480 VGA display 10" width • Pre-installed Windo 3.1 • 4 MB RAM or 8MB RA expandable to 20 MB • 120 HD •T ravelPoint® with QuickPort™ connection
2646692-0001

**2459.**

Avanti 486

### 486SLC 25 MHz PASSIVE COLOR



• 120 MB HD • 4 MB RAM

BVERCA0011

**2399.** Limited Supply

TEXAS INSTRUMENTS

### TM4000 120 MB WIN 486DX2-50

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2581303-0019

**2999.**

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intel inside

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Monitor extra

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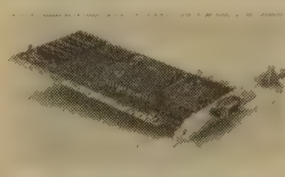

High resolution, up to 1280x1024, hardware cursor speeds performance, feature connector for multimedia applications, fast animation redraw, flicker-free 72 Hz refresh rate.

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9 pin printer. Perfect for the entry level, cost conscious computer user.

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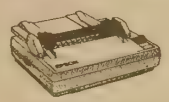
### LX-810 EPSON



9 Pin • SmartPark™ paper handling • 200 CPS Super draft • 30 CPS NLQ • High resolution graphics

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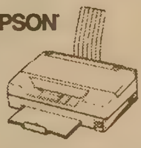
### AP 3250

EPSON



The affordable, fully featured, 24 pin dot matrix printer for the small business or home.

**199.**

### LQ570+

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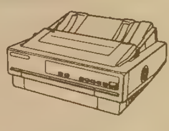

This 24 pin printer utilizes scalable fonts, enhanced graphics, and advanced paper handling.

**259.**

## DOS/WINDOWS SOFTWARE

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### Quicken 6.0 for Windows

Intuit

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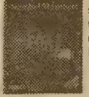
### Number Munchers



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Animated game of the year, with Arabian Nights theme and endlessly challenging levels.

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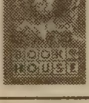

An enchanting environment that encourages young children to independently develop early reading skills.

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### Reader Rabbit 2

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MAXIS

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# The Marquardt-MiniErgo Keyboard

## *A Newer, Safer Alternative To The Standard Keyboard*

**BY ED KAHN**

**RESOURCES:**

**OmniBook 300, $1950 with 40MB hard drive or $2375 with 10MB flash memory card**
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Corvallis, OR 97330
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**JetEye PC, $149**
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Extended Systems
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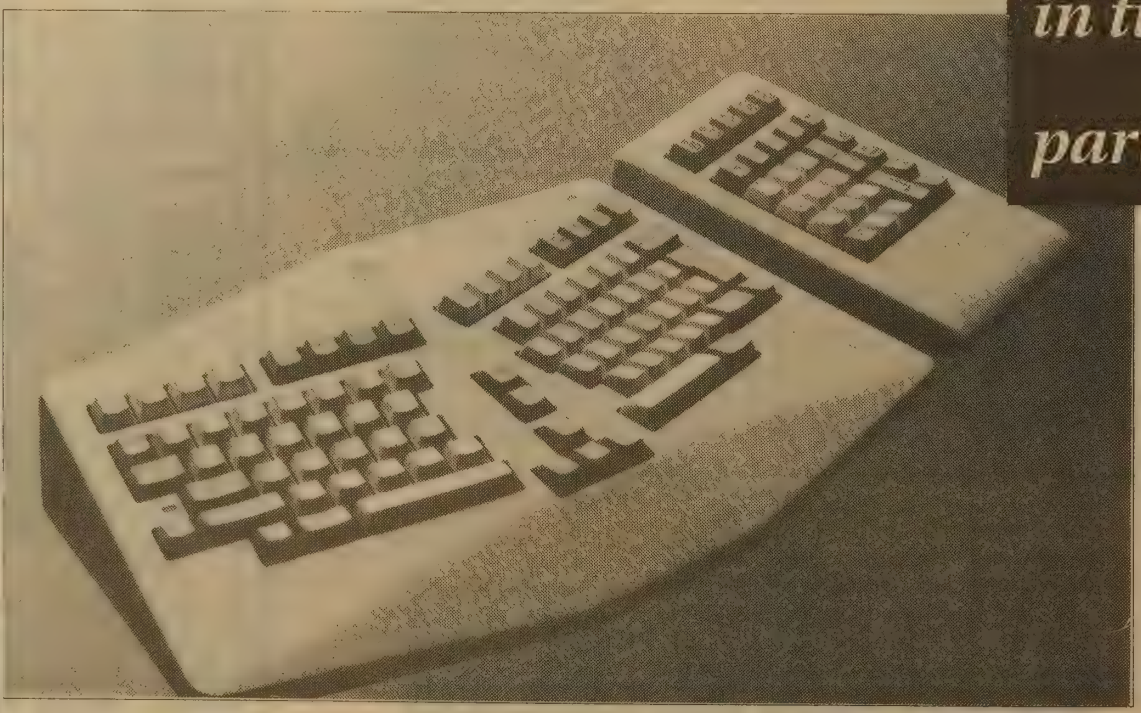
Boise, Idaho 83704
1-800-235-7576
ktop PC.

As portable computers get smaller and smaller, I find it increasingly necessary to have a good quality, full-size keyboard to plug into my portable at my regular work place. Strangely, however, it is becoming more and more difficult to find keyboards that are both small in size and have full functions. Most of the better keyboards these days are a bit too large to use while leaning back in a chair. For myself, I actually prefer to use a keyboard on a desktop, but I know many people who work with the keyboard on their lap. The common complaint I get is that the keyboards I like are too big for this use.

In my quest for a better keyboard, several years ago I started looking for a keyboard like the ones that were popular in the earlier days of personal computing. Basically, I was looking for a standard keyboard with a numeric keypad, which could be switched to function either as a keypad or a cursor control pad. No luck. There simply is not enough demand for these boards anymore.



*The MiniErgo splits the standard keyboard in two parts.*

Recently, I saw an announcement for an ergonomic keyboard designed in Germany that seemed interesting. In fact, I am writing this column with that keyboard. While it is small enough to hold on your lap, I am writing about this keyboard primarily for those of you who are having trouble with today's standard keyboards and are looking for an alternative.

Basically, the MiniErgo splits the standard keyboard in two parts, sloping to the sides and front at about a 40 degree angle. This design allows a more natural positioning of your hands and arms. The advantage to this is that your wrists can be held straight, rather than at the angle we typically hold our wrists when typing on a conventional keyboard, and thus avoid a major cause of Repetitive Stress Injuries.

Within the inverted V that is created by rotating the right and left halves of the keyboard, are the Insert, Delete, and cursor movement arrow keys arranged as an inverted T. The intent is that you will press these keys with your thumbs or first fingers.

My major complaint with the layout is that PgUp, PgDn, Home, and End functions are done through pressing the Fn key plus a cursor movement key. This layout hampers people who work primarily with text. Word processing demands dedicated keys for each of these commands.

There is also an imbedded numeric keypad, but you can get around this by purchasing the optional numeric keypad ($125) that is consistent with the basic design of the keyboard and sits to either the right or left of the basic unit. Unfortunately, the keypad does not double as a cursor control pad which would eliminate the need to use the Fn key.

The key action on the MiniErgo is good and my wrists truly are straight when I use this keyboard. It has not taken me long to get used to this new keyboard configuration and I am sure that within an equally short time my typing speed and accuracy will be back to normal.

The price for this keyboard is $179 and it carries a thirty-day satisfaction guarantee. If you are having trouble with standard keyboards this ergonomic alternative is worth checking out. With their guarantee, you have nothing to lose.

*continued on page 268*

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| NEC ULTRALITE VERSA 486SL/33 180MB Active Color W/ 4MB | $4227 |
| NEC ULTRALITE VERSA 486SL/25 120MB LCD W/ 4MB | $2672 |
| NEC ULTRALITE VERSA 486SL/25 180MB LCD W/ 4MB | $2908 |
| NEC ULTRALITE VERSA 486SL/25C 120MB Active Color W/ 4MB | $3729 |
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| TEX. INSTR. WinSLC/25 486SLC/25 60MB LCD , 2MB, Win, Mouse | $1559 |
| TEX. INSTR. WinSLC/25 486SLC/25 80MB LCD, 2MB, Win, Mouse | $1641 |
| TEX. INSTR. TM4000 WinSX/25 120MB LCD, 4MB, Win, Mouse | $1805 |
| TEX. INSTR. TM4000 WinDX/25 120MB LCD, 4MB, Win, Mouse | $1929 |
| TEX. INSTR. TM4000 WinDX/25 200MB LCD, 4MB, Win, Mouse | $2090 |
| TEX. INSTR. TM4000 WinDX2/50 120MB LCD, 4MB, Win, Mouse | $2566 |
| TEX. INSTR. TM4000 WinDX2/50 200MB LCD, 8MB, Win, Mouse | $2863 |
| TEX. INSTR. TM4000 WinDX2/50 200MB Active Color, 4MB, Win, Mse | $3635 |
| TOSHIBA T1900 486SX/20 120MB LCD W/ 4MB, Windows, Mouse | $1712 |
| TOSHIBA T1900 486SX/20 200MB LCD W/ 4MB, Windows, Mouse | $1859 |
| TOSHIBA T1900 486SX/20 340MB LCD W/ 4MB, Windows, Mouse | $2487 |
| TOSHIBA T1900C 486SX/20 120MB Passive Color, 4MB, Win., Mouse | $2339 |
| TOSHIBA T1900C 486SX/20 200MB Passive Color, 4MB, Win, Mouse | $2538 |
| TOSHIBA T1900C 486SX/20 340MB Passive Color, 4MB, Win, Mouse | $3180 |
| TOSHIBA T1950 486DX2/40 120MB LCD W/ 4MB, Windows, Mouse | $2088 |
| TOSHIBA T1950 486DX2/40 200MB LCD W/ 4MB, Windows, Mouse | $2339 |
| TOSHIBA T1950 486DX2/40 340MB LCD W/ 4MB, Windows, Mouse | $2903 |
| TOSHIBA T1950CS 486DX2/40 120MB Passive Color, 4MB, Win, Mse | $2673 |
| TOSHIBA T1950CS 486DX2/40 200MB Passive Color, 4MB, Win, Mse | $2924 |
| TOSHIBA T1950CS 486DX2/40 340MB Passive Color, 4MB, Win, Mse | $3549 |
| TOSHIBA T4400 486SX/25 120MB LCD W/ 2MB | $1999 |
| TOSHIBA T4500 486SX/20 200MB LCD W/ 4MB, Windows, Mouse | $2006 |
| TOSHIBA T4600 486SL/33 120MB LCD W/ 4MB, Windows, Mouse | $2538 |
| TOSHIBA T4600 486SL/33 200MB LCD W/ 4MB, Windows, Mouse | $2679 |
| TOSHIBA T4600 486SL/33 340MB LCD W/ 4MB, Windows, Mouse | $3252 |
| TOSHIBA T4600C 486SL/33 120MB Active Color w/ 4MB, Win, Mouse | $3927 |
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| TOSHIBA T4600C 486SL/33 340MB Active Color w/ 4MB, Win, Mouse | $4595 |
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| MEGAHERTZ IBM THINKPAD 300 14.4/14.4 | $508 |
| SHARP PC-6600/6641/6661 9600B FAX/14.4 MODEM | $570 |
| AST PREMIUM EXEC /ADVANTAGE 9600B FAX/2400B MODEM | $165 |
| ANGIA 14.4 FAX/MODEM for TOSHIBA DEDICATED SLOTS | $384 |

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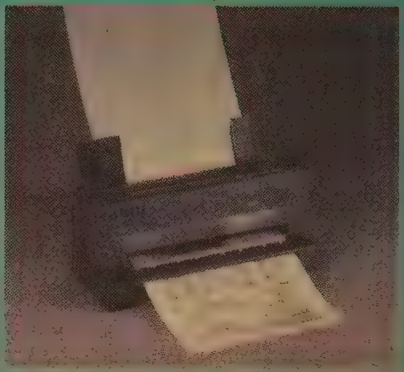

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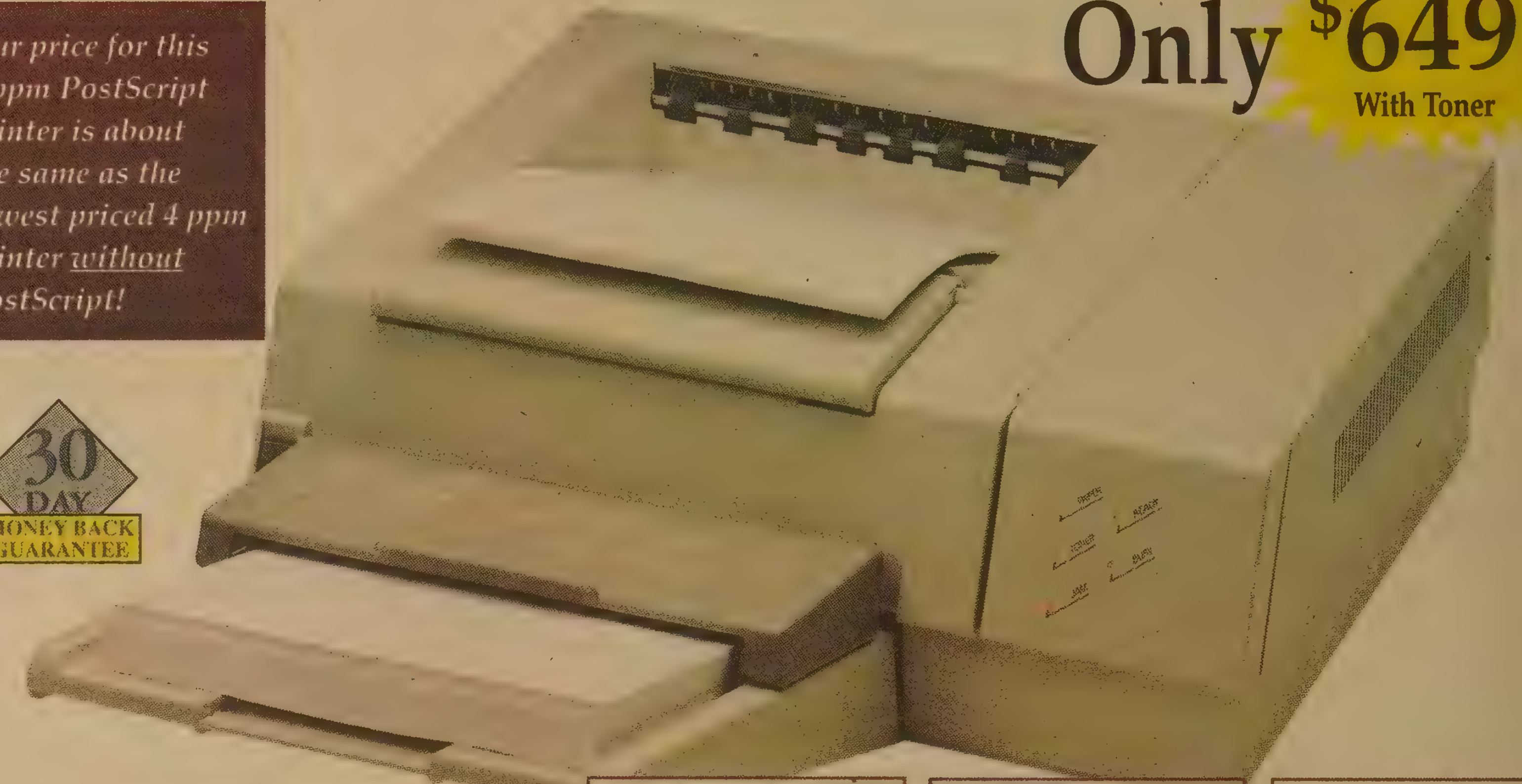

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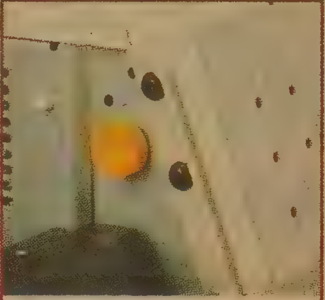

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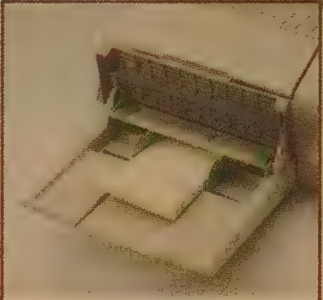

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# Tips For Telecommuting Productivity

## *A Method For Achieving Greater Productivity*

**BY ROBERT MOSKOWITZ**

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*Robert Moskowitz is a business consultant based in Woodland Hills, CA, who writes frequently on productivity, office automation, and technology. He can be reached at: PO Box 6375, Woodland Hills, CA 91365. Email: rmoskowitz@aol.com.*

Study after study reveals that telecommuters tend to be more productive than comparable office-bound workers. No one has yet documented why, but I suspect the main reasons include telecommuters' tight focus on the work they must accomplish while telecommuting, as well as their greater flexibility to apply themselves—minute by minute—to work that suits their preferences.

The underlying "focus" that makes a person 10–20% more productive once they start telecommuting can nearly always be tightened to make the telecommuter even more effective, and can be applied equally well to work done while in the office or while telecommuting.

As author of How To Organize Your Work and Your Life (Doubleday, 1981, revised and republished in 1993), I have focused much of my attention on the very areas where efforts to become an effective telecommuter seem to overlap with efforts to improve one's general level of productivity.

Here's a brief discussion of how to help yourself (and anyone who reports to you) accomplish more of what's most important—every working day:

### TO BE MORE PRODUCTIVE, UNDERSTAND THE VALUE OF HAVING CLEAR GOALS

Aside from the inevitable practical problems, pitfalls, and delays of day-to-day work, there is a separate category of wasted time and misdirected energy that fills a good portion of every day. In the office, interruptions and rapidly changing orders or inputs from others rob you of your focus. While you're telecommuting, distractions or lack of self-discipline might be the main culprit. The problem: a shortage of clear, firm goals.

Consider for a moment the full range of responsibilities and opportunities you face when you telecommute (or when you are in the office). In this broad context, do you know exactly what accomplishments you're aiming for today? Do you have a plan for reaching each of the many goals you feel are important? Can you specify the goals your present activities are directed at achieving?

Unfortunately, hardly anyone can honestly answer "yes" to these three questions. Few people (including perhaps you, on certain days) have clear ideas about what goals to strive for, how to accomplish them, or what goals their current activities are helping to realize. This means they have no basis for choosing to focus on one task rather than another.

Without a structure to give direction, your level of results and feelings of personal satisfaction tend to be controlled by external, possibly unimportant factors beyond your personal control. But this need not be true. Your level of productivity, achievement, and success are not determined by your genes. You've learned how to work to a certain achievement level by observing the world around you, by participating in situations, and by experiencing and emulating the people you've admired.

> **In practice, working more productively comes down to a basic series of choices concerning "What should I do next?"**

You can raise your level of productivity, achievement, and success, quite simply, just by starting to put more of your time and effort toward projects you determine to be the most important. At the same time, you can consciously avoid working on projects you deem less important. The result: a very tight focus on work that will lead toward accomplishing whatever objectives you have established for yourself.

### TO BE MORE PRODUCTIVE, TAKE TIME TO ESTABLISH YOUR GOALS AND PRIORITIES

Note that you are not limited to setting only one goal at a time. You can simultaneously have as many goals as you like, with anticipated time frames ranging from one day to a year or longer. No matter. Working and telecommuting with specific goals in mind helps make you more productive regardless of how many goals you are trying to accomplish. Your satisfaction with each day's accomplishments will help motivate your efforts toward other goals.

To clearly identify your own goals for tomorrow and the foreseeable future, make three lists of ten "goals" you would like to achieve: one list for immediate job goals, a second list for medium- and long-term career or professional goals, and a third list for personal goals during the next ten years. For example, you might want to earn a promotion or a salary increase to a specific job level, develop an entirely new market for your company's products, and travel around the world.

Make each goal something you would be proud to have on your record, and describe each one so specifically that any neutral observer can easily determine whether or not you achieve it. Include a time limit, where appropriate. Note that goals which do not make it to these lists are, by definition, less important.

These lists give you the potential to take far greater control of your activities. You still may or may not achieve all your goals. You still may not be able to work toward something important every minute. But having the lists puts you in a very good position to try.

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## TO BE MORE PRODUCTIVE, DETERMINE THE RELATIVE PRIORITIES OF YOUR IMPORTANT GOALS

Generally, most of the tasks you can do—whether you're telecommuting or in the office—lead toward only one of your goals. That's why it's important to place your goals in priority order so you know which ones should take precedence.

A simple procedure to determine these relative priorities (and remember, by definition all these goals are important to you) is to give each one a point score (1 to 10) for its "urgency," a second point score for its importance to you, and a third point score for its value in the larger context of your work and your life. Score each list of goals separately. Add up the scores and you get a preliminary priority ranking.

To refine this raw ranking, compare the goals in pairs. Start with the bottom two entries (number 9 and number 10) and answer the question: Which of these two is more important? Rearrange them if necessary to reflect your answer. Now make the same comparison for items number 8 and number 9. Work your way up the whole list, and then back down again. If necessary, repeat the entire cycle. After a surprisingly short while, you'll have the list in a priority order that makes sense. Repeat the process separately for each list of goals.

## TO BE MORE PRODUCTIVE, UNDERSTAND THE IMPORTANCE OF ACTION PLANS

Prioritized lists of goals are important tools for improving your productivity. But by themselves they won't make a very big difference. The problem is that, whether you're telecommuting or working in the office, a significant action toward an important goal generally requires a fairly large investment of time, thought, and effort. What's more, there's generally a good deal of preparation, planning, homework, and coordination with others involved in any important project you undertake. You can rarely find time for more than one or two really important activities each day.

That's why you need to bolster your lists of goals with specific action plans. Once you have a plan for reaching a goal, you can more easily direct your efforts according to those plans. In the absence of a plan, your activities are far more likely to be controlled by events and distractions around you.

To prove this, compare your stated goals with the de facto goals you actually spend

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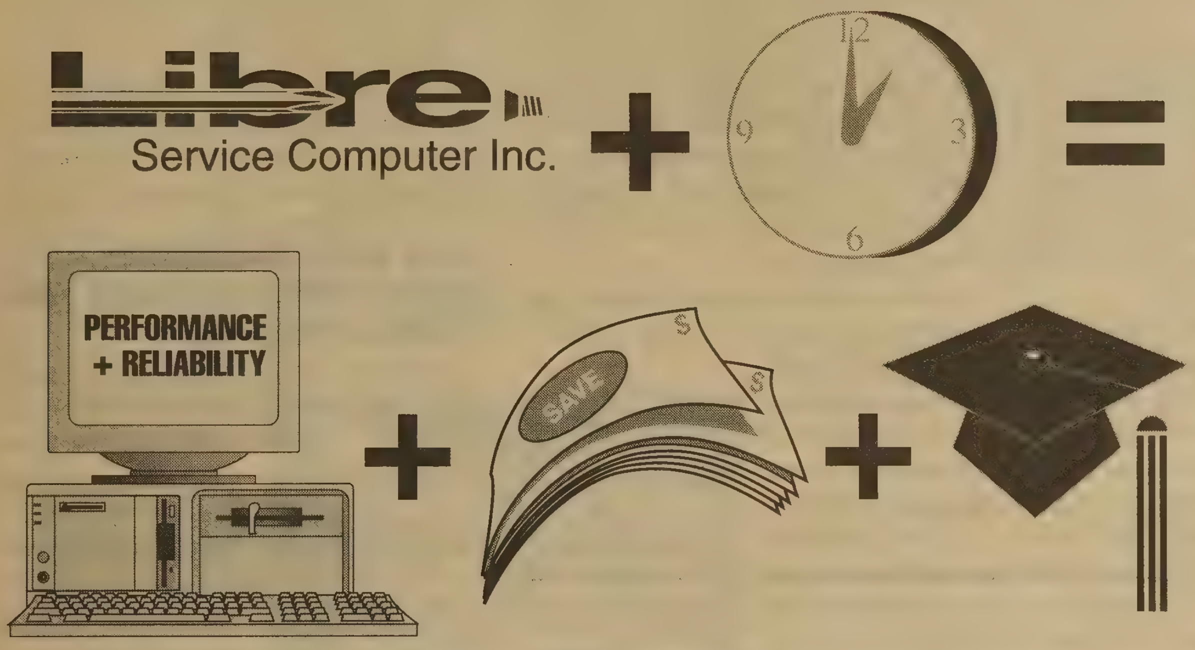

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time on. Analyze one day you're working in the office, and one day you're telecommuting. Assign each task you do to the goal it supports. For simplicity and convenience, don't bother assigning every action, just the ten most demanding and/or most time-consuming of the day.

If you're like most people, you'll find a great many of your important goals receive precious little attention or effort. You'll also find a great many activities without much purpose, or helping to achieve goals that never made it onto your "top ten" lists. Unfortunately, such activities often consume a fairly large proportion of your overall effort. If you try the same analysis for a whole week or a whole month, you'll probably find the pattern doesn't change very much.

### TO BE MORE PRODUCTIVE, MAKE ACTION PLANS FOR ACHIEVING YOUR IMPORTANT GOALS

Suppose for a moment that you're interested in writing a symphony, starting a business, or going back to school toward earning a new degree. Each of these is a long, complicated, and difficult project that takes a good deal of time. Chances are you'll have a very hard time getting started, and may never achieve your goal at all, unless you create a detailed plan to follow directly toward your goal.

An action plan cuts the important goal into "bite-size" jobs you can do fairly easily. For example, if your goal is to write a symphony, you can break it down in your action plan into writing the overture and three or four movements. You can then break each of these down into the necessary number of musical passages, each with its own requirements. Once you've developed this action plan, you can follow it to write your symphony piece by piece, reserving a few minutes or an hour each work day to work on the next task, and feeling good when you finish each one.

**Prioritized lists of goals are important tools for improving your productivity. But by themselves they won't make a very big difference.**

You achieve the same increase in productivity whether you make a detailed action plan for a large-scale project or any other goal you'd like to accomplish.

### TO BE MORE PRODUCTIVE, CHOOSE CAREFULLY WHAT YOU SPEND TIME ON NEXT

Obviously, you can't work toward every goal every day. Your time and energy are limited. But these limits don't prevent you from tightly focusing your efforts. In fact, the limits place a larger premium on organizing and controlling your efforts to make your opportunities yield as much of what you want as possible.

In practice, working more productively comes down to a basic series of choices concerning "What should I do next?" You

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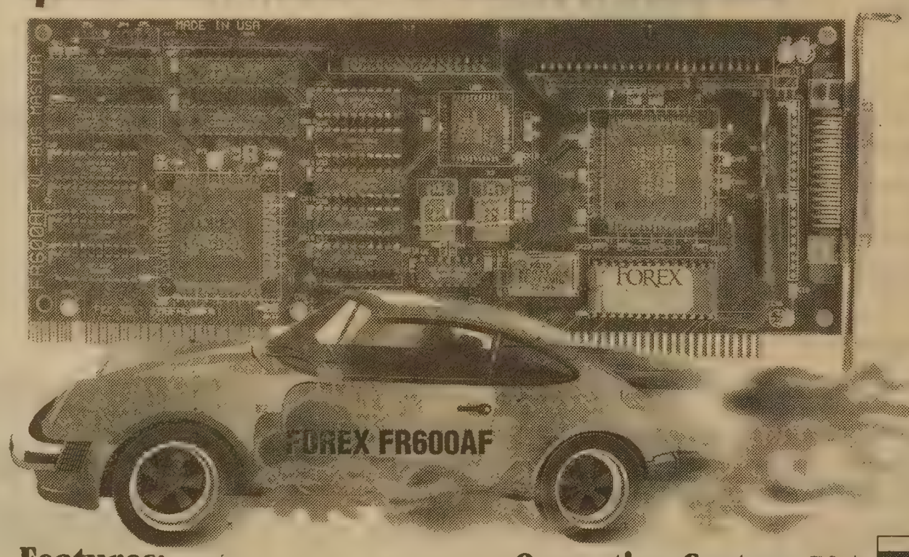

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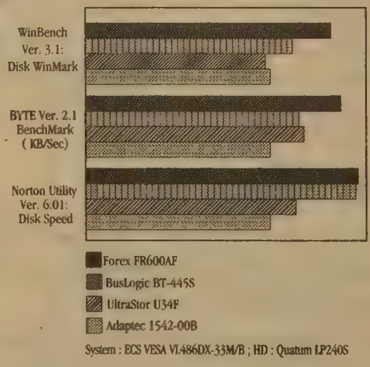

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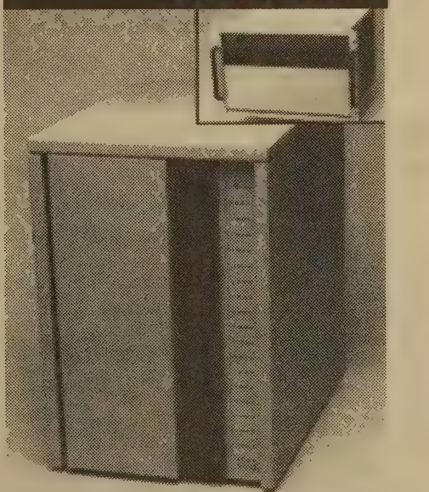

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can ask yourself this question dozens, even hundreds of times a day—every time you finish working on something, every time you hang up the phone, every time you leave a meeting, every time your attention wanders from what you are doing.

Ideally, you answer the question with an item from one of your action plans. This immediately focuses your efforts toward achieving your important goals. Once you get in the habit of resisting the forces that try to make your day chaotic and carefully considering this basic choice instead, there's no hesitation in focusing your time and effort on the action items that will keep you working toward your most important goals.

## SURVEY OF ATTITUDES FAVORS TELECOMMUTING

According to a recent survey sent to me by a reader, more than three-quarters of the working Americans who were polled said that important goals for them in the 1990s are to spend more time with family and friends, cut back on expenses, and have more free time. Nearly two out of five respondents claim they presently deprive themselves of needed sleep to have more time during the day. Nearly one-third said they don't have time on most weekends for what they'd really like to do. And more than one out of five claimed to have falsified a sick day within the last year to stay home from work for other responsibilities in their lives.

If you'd like to put a monetary value on telecommuting, here's one clue about how to do it: among employees earning more than $400 per week, nearly half said they'd give up a day's pay and work only four days a week, as a way to make time for other responsibilities in their lives. Among employees earning more than $600 per week, about seventy percent would willingly give up the extra day's pay.

(Even without knowing the exact source, I give some credence to these numbers because they agree with my own informal findings, and because the copy I received appears to have been printed in a magazine or brochure. If anyone can tell me the source of these numbers, I'd like to cite it in a future column.)

## OFFICE IN A BRIEFCASE

In the last year or so, a number of computer vendors have begun to offer a complete "office in a briefcase." This tends to be some combination of a cellular telephone, a notebook computer, a computer printer, and a fax-and-data modem. Many of the units are sold complete, but others are modular designs that allow you to integrate any printer, any cellular phone, or any notebook computer that you may already have. The units are set up so all the equipment can be powered by a single source, which can be batteries, a cigarette-lighter adapter plug into your car or boat, or an AC adapter into the wall.

Expensive (ranging up to $9500 list price) and heavy (tilting the scales at 20 to 30 lbs.), these products are clearly not for everyone. Yet they are finding a market among people who need powerful communications and data-handling capabilities without being tied to a desk.

If any reader has had experience with this approach to telecommuting, please write or call me so I can report on the pros and cons of this fascinating technology. ■

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51 ( ) **Education**
52 ( ) **Other (specify)** ______________

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38 ( ) Government- Military
44 ( ) Leisure
31 ( ) Manufacturing (other)
45 ( ) Media
43 ( ) Research & Development
47 ( ) Travel, Transportation
42 ( ) Trade (Wholesale, Retail)
35 ( ) Utilities (Gas, Electric, etc.)
48 ( ) Healthcare
46 ( ) Other

**3. Please indicate which operating systems are currently in use at your locations:**

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41 ( ) OpenVMS/AXP
42 ( ) UNIX
43 ( ) ULTRIX
44 ( ) MS-DOS
45 ( ) OS/2
46 ( ) HP-UX
47 ( ) SUN/OS/SOLARIS
48 ( ) Windows NT
49 ( ) UNIX/XENIX
50 ( ) SCO
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52 ( ) Other
53 ( ) VM
54 ( ) OS/400
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**4. Total employees in entire company/institution/government department (select only one):**

2 ( ) 10,000 or more
3 ( ) 5,000 to 9,999
4 ( ) 1,000 to 4,999
5 ( ) 500 to 999
6 ( ) 250 to 499
7 ( ) 100 to 249
8 ( ) 6 to 99
9 ( ) Fewer than 6

**5. Amount of all computer-related expenditures to be made by my organization annually (or by my client's organization if I am a reseller or consultant):**

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73 ( ) $100,001-$500,000
74 ( ) $50,001-$100,000
75 ( ) $25,001-$50,000
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Laptops connected to the network must be about as common as desktop nodes, if the proliferation of parallel-port network interfaces is any indication. Just a few years ago Xircom pioneered the first of these devices, and now virtually every vendor of LAN hardware seems to offer one in its line. Xircom is into its third generation, and now has PCMCIA versions for the latest round of miniscule portable machines.

In one sense, you can make a stronger argument for connecting a portable to the LAN than you can for connecting a desktop machine. Either type of machine can benefit from access to network resources, but a notebook, handheld, or pen unit also benefits from the ability to offload the data you collect in the field.

However, portable machines can pose logistical problems when they return from the field: Where do you put them? Do you provide a desk for every field agent, even if they spend most of their time out of the office? Those desks will take up a lot of floor space, and it's hard to justify the expense for a resource that will only see occasional use. And where do you connect them? Do you need to wire another drop for each of them? That's even more costly.

## THE LAPTOP DESK

The Laptop Desk from American Business Concepts addresses the first of these issues by putting everything you need into a compact modular unit that functions as an inexpensive temporary work space. Its black-laminate desktop is specifically made to support lightweight portable machines. A cantilevered printer shelf supports printers up to 25lbs.—the weight of a Hewlett-Packard LaserJet IIIP printer. There's also a hideaway storage space for cables or power supplies, an adjustable copy holder, a utility tray for pens and pencils, and two organizer shelves for books and papers. The organizer shelves are just right for use as a pair of in and out boxes too.

The desk has another feature that adds to its usefulness with laptops: Lighting. A goose-necked halogen light clips onto the desk, from either side, using a quick-release system. It can make any LCD bright and easy to read under the dimmest conditions.

The unit's desktop can hold a laptop computer weighing up to 15lbs. It tilts up to 45 degrees to either side, so you can adjust it for right- or left-side access. The height of the work surface can also be adjusted, from 25" to 34"—allowing its use with almost any chair. At just 4", the base is low enough to slide under most office furniture, including wheelchairs, and it's mounted on small casters. Outside the office, you could even use the Laptop Desk from a recliner or bed, and its size is ideal for cramped home offices (whether you have a network or not).

> **Xircom CEO Dirk Gates says,**
>
> *"With Farallon's EtherWave transceivers for only $129, users can daisy-chain from their desktop to their Xircom-enabled laptop without having to wait for, or pay for, rewiring."*

This entire package fits into a surprisingly small area. Several Laptop Desks could squeeze into the space occupied by a standard office desk. But because it's designed to hang over a seat, while its base slides under it, most of the unit actually shares same space as the user's chair. If you already got the chair, all it needs is airspa So, the Laptop Desk is not only convenie for use with trim computers, its footpri virtually disappears.

## MAKING WAVES

Unfortunately, the Laptop Desk doesn solve the problem of how to connect th laptop to your LAN. Fortunately, Farallo does.

The company has jus announced EtherWave, an Ethernet transceiver that logically connects to 10BaseT in the same way Thicknet transceivers connect to a backbone. Xircom CEO Dirk Gates says, "With EtherWave transceivers for only $129, users can daisy-chain from their desktop to their Xircom-enabled laptop without having to wait for, or pay for, rewiring."

Just as Xircom's competition did with Pocket LAN adapters, I suspect Farallon's competition will soon be trying to clone EtherWave.

EtherWave transceivers aren't repeaters, and don't impact your repeater count. They combine transceiver and hub technologies, without reclocking, to allow you to daisy-chain nodes on a true 10BaseT net.

There are actually two main flavors of EtherWave: an external transceiver or an internal version that resides on a 3Com-compatible NIC. (Farallon uses 3Com's parallel-tasking Ethernet chips for the ultimate in Novell compatibility.) The internal cards have an SNMP agent built into their driver, so they can be managed through an SNMP console. External devices also have either a DIN-8 connector for your AppleTalk port, or an AUI cable to connect to your NIC. (LocalTalk versions work like a forwarder from LocalTalk to Ethernet.) Of course, not all 10BaseT cards have AUI connectors, but an external EtherWave will let you connect 10BaseT to any Ethernet card, including

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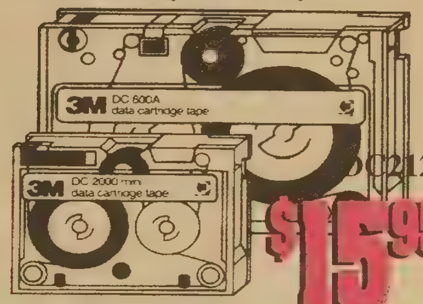
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| CHD3F | PreFormatted 3.5"DSHD | 59¢ | 65¢ | 69¢ | 69¢ |
| MX2HD* | High Quality 3.5"DSHD | 59¢ | 65¢ | 69¢ | 69¢ |
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| MX2DD* | High Quality 3.5"DSDD | 43¢ | 45¢ | 49¢ | N/A |
| CDD5* | High Quality 5.25"DSDD | 21¢ | 23¢ | 26¢ | N/A |
| CHD5* | High Quality 5.25"DSHD | 31¢ | 34¢ | N/A | |
| CDD5F | PreFormatted 5.25"DSDD | 31¢ | 33¢ | 36¢ | N/A |
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*These Diskettes are ideal for software duplicators and Macintosh Owners. Each Premium disk is 100% tested and verified to be ERROR FREE.

*3.5"Shipping charges: 60¢ per 25 pcs. /.5.25" Shipping charges: 60¢ per 50 pcs Call for larger qty*

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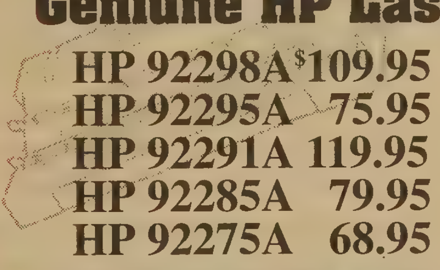

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| HP 92298A | $109.95 | HP 51608A Deskjet | $17.59 |
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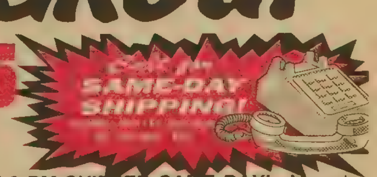
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Thick or Thin, that has an AUI port.

Either version of EtherWave has a pair of RJ-45 connectors for input and output. Wherever you could connect a single workstation, you can connect one of these segments. Each segment can connect up to eight nodes, and the length of the segment is limited by the standard 10BaseT limit of 100 meters to a hub.

For a small network of eight or fewer nodes, you could actually use these transceivers without a hub. Substitute it in applications in which you might otherwise use something like Farallon's Ether10-T Starlet minihub. And since it isn't necessary to calculate repeater counts, a much less sophisticated user can install EtherWave.

Larger webs can benefit, too, from the preservation of existing equipment. For example, you can greatly expand them without replacing hubs, even if you've reached the limit of your hop count. An old eight-port hub alone could support up to fifty-six workstations using EtherWave.

Surprisingly, Farallon claims that you don't pay a penalty to use its technology. Performance isn't impacted because EtherWave strictly complies with the 802.3 specification.

Of course, you're not limited to using EtherWave products with portable computers. Farallon makes a complete line for PCs and Macs of every stripe—even for printers. The adapter for PowerBooks, for instance, also works for any Mac without an available slot. A printer adapter likewise connects any LocalTalk printer to a 10BaseT network. The Newton adapter plugs into the Newton's communication port. ■

# Portable machines can pose logistical problems when they return from the field:

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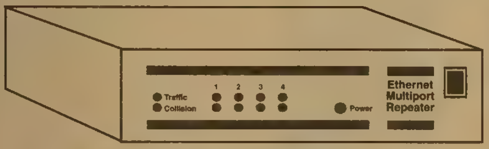

### REPEATERS

**Ethernet Repeaters**
- BNC and AUI connectors for each port.
- Activity and Partition indicators for each port.
- Automatic preamble generation.
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- Traffic and collision indicators.

**#ETMPR2 2 port repeater —$379**
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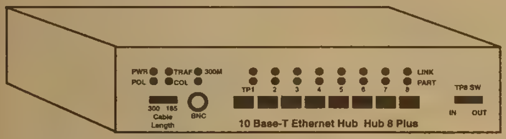

### HUBS

**9 Port Concentrator**
- 8 UTP ports, 1 BNC port.
- Diagnostic LED's for link integrity.
- Low Cost!

**ER5390 Sale Priced @ -$229**

**14 Port Concentrator**
- 12UTP, 1 BNC, 1 AUI ports (10 Base 2/5T)
- Status LED's for traffic, collision, fifo error, MAU lockup, partition, and twisted pair link.
- Rack mountable.
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**16 PORT CONCENTRATOR —$545**
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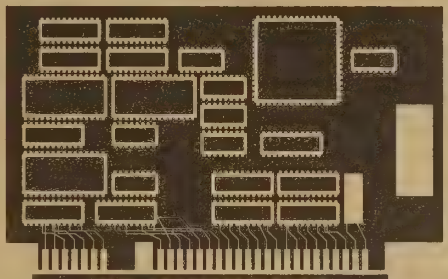

### PC INTERFACE CARDS

**8 Bit 10 Base T**
- Novell NE1000 compatible
- Multi Packet Buffer
- Very low cost

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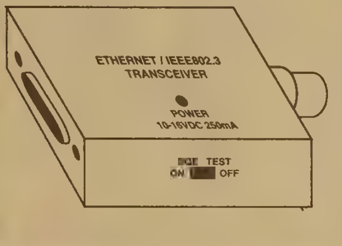

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- 6 Status LED's

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**10 Base 2 Coax MAU**
- Complete AUI to Thin Ethernet transceiver
- Selectable SQE test
- up to 600M without a repeater

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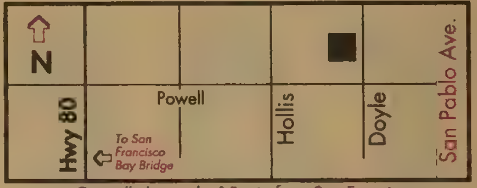

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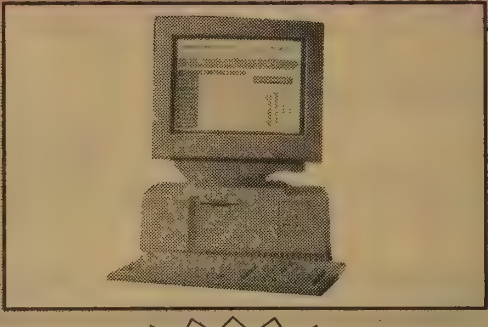

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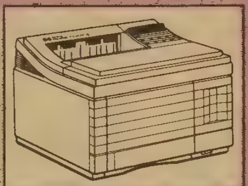

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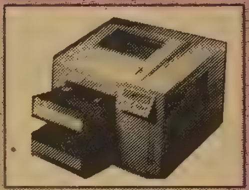

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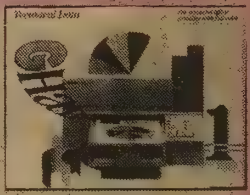

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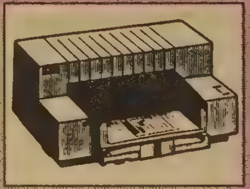

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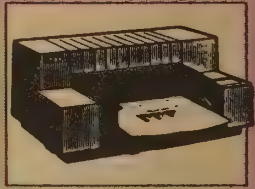

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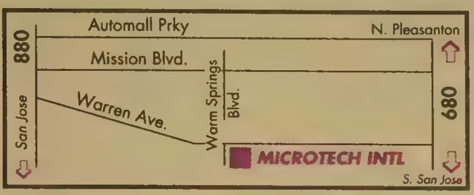

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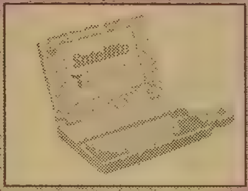

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7. CD Title: U.S. Atlas with Automap
8. CD Title: World Atlas

*TERMS AND CONDITIONS: • MAJOR CREDIT CARDS ACCEPTED • NO SURCHARGE FOR VISA, MC, AE AND DISCOVER CARDS • QUALITY PO'S ACCEPTED APO'S WELCOME • SHIPPING CHARGE NOT REFUNDABLE • RETURN SHIPPMENTS MUST BE INSURED, PREPAID AND BEAR AN RMA# ON THE SHIPPING LABE • PRICE DOES NOT INCLUDE SHIPPING • PRICE AND CONFIGURATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE • ALLOW 14 DAYS TO PROCESS REFUND. • NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.*

HD

COMPUTER

# EDITOR'S CHOICE NO.1 BYTE JUNE 1993

## BEST VALUE CAD AND GRAPHICS

## BEST VALUE WINDOWS SYSTEM

## BEST VALUE UNIX SYSTEM

## EDITORS & BUSINESS BUYERS AGREE!

**HD IS YOUR SOLUTIONS SUPERSTORE! BYTE'S June 1993 Best Low Cost CAD, WINDOWS, UNIX System...the HD VLB66**

**HD'S** 486DX2/66 system won hands down for Best Low Cost CAD, WINDOWS and UNIX system. It beat out, Easterntech,Acma...... That's no surprise, considering it's solid performance, flexible expansion options and low price. Our high resolution 14" non interlaced display and Genoa Windows VGA card featuring the Cirrus Logic chip set means faster screen redraws and more efficient work for you. All this plus one year parts & lifetime labor, lifetime tech support and optional on-site service are just a few reasons why HD's 486DX2/66 is the system for the '90s and beyond!

### VESA LOCAL BUS VL-B 486SX

- ZIF Socket for Easy Upgrade to Intel P24 -T
- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **130MB IDE Hard Disk**
- IDE 2H/2F Controller
- 2 Serial 1Parallel 1 Game Port
- 101-key enhanced keyboard, MITSUMI
- Mini-tower case w/ 200W power supply
- 14" SVGA Non-interlaced monitor 0.28 dpi
- **VL-B Graphic Accelerator** w/1MB (Expandable to 2MB) Max 1280x1024 16.7 Million Colors. Driver Support Windows 3.1 AutoCAD R.12 OS/2 V.2.0
- 2 button Hi-Re serial Mouse

**Free Software Option**

**486SX-25MHz $1195**

**486SX-33MHz $1245**

### VESA LOCAL BUS BEST BUY

- ZIF Socket for Easy Upgrade to Intel P24 -T
- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **245MB IDE Hard Disk**
- IDE 2H/2F Controller
- 2 Serial 1Parallel 1 Game Port
- 101-key enhanced keyboard, MITSUMI
- Mini-tower case w/ 200W power supply
- 14" SVGA Non-interlaced monitor .28 dpi
- **VL-B Graphic Accelerator** w/1MB (Expandable to 2MB) Max 1280x1024 16.7 Million Colors. Driver Support Windows 3.1 AutoCAD R.12 OS/2 V.2.0
- 2 button Hi-Re serial Mouse

**Free Software Option**

**486DX-33 $1395 486DX2-66 $1595**

**486DX2-50 $1495**

### VLB w/ANTI-VIRUS PROFESSIONAL

- ZIF Socket for Easy Upgrade to Intel P24 -T
- 128K Cache Expandable to 256KB
- **8MB RAM Expandable to 32MB**
- 1.2MB and 1.44MB Floppy Disk Drive
- **340MB IDE Hard Disk**
- **32 Bit VLB IDE Controller w/ANTI-VIRUS**
- 2 Serial 1Parallel 1 Game Port
- 124-key Focus 9000 keyboard
- Mini-tower case w/ 200W power supply
- 15" SVGA Non-Interface Flat-Screen monitor
- **VL-B Graphic Accelerator** w/1MB (Expandable to 2MB) Max 1280x1024 16.7 Million Colors. Driver Support Windows 3.1 AutoCAD R.12 OS/2 V.2.0
- 2 button Hi-Re serial Mouse

**Free Software Option**

**486DX-33 $1845 486DX2-66 $2045**

**486DX2-50 $1945**

### System Below $1,000 HD 386

- 4MB RAM Expandable to 32MB
- 1.44MB Floppy Disk Drive
- **130MB Hard Disk**
- **1.1 Interleace 2 FL/2HD Disk Controller**
- 2 Serial 1Parallel 1 Game Port
- 101-key enhanced keyboard
- Mini-tower case w/ 200W power supply
- **14" SVGA Color Monitor 0.39dpi**
- 16 Bit SVGA CARD/1MB
- **2 button Hi-Re serial Mouse**
- **Free Software Option**

**386SX-33MHz $895**

**386DX-33MHz w/64K Cache $945**

**386DX-40MHz w/64K Cache $945**

### Windows Accelerator HD486-ISA

- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.2MB and 1.44MB Floppy Disk Drive
- **245MB IDE Hard Disk**
- 1:1 Interleave 2 FL/2HD Disk Controller
- 2 Serial 1 Parallel 1 Game Port
- 101-key enhanced keyboard, MITSUMI
- Mini-Tower Case w/ 200W Power supply
- 14" SVGA Non-Interlaced Monitor .28 dpi
- **Windows Accelerator Card w/ 1MB**
- **2 button Hi-Re serial Mouse**
- **Free Software Option**

| | | | |
|---|---|---|---|
| **SX-25** | **$1195** | **DX2-50** | **$1405** |
| **SX-33** | **$1245** | **DX-50** | **$1445** |
| **DX-33** | **$1345** | **DX2-66** | **$1545** |

### Top Performance EISA/VESA

- **ZIF Socket for Upg. to any Intel P24 -T**
- 256K Cache Expandable to 1MB
- 4MB RAM Expandable to 256MB
- 1.2MB and 1.44 MB Floppy Disk Drive
- **340 MB SCSI Hard Disk**
- **32 BIT EISA SCSI Controller**
- 2 Serial 1 Parallel 1 Game Port
- 101-key Enhanced Keyboard,KEYTRONIC
- Mid Tower Case w/ 230W Power Supply
- **View sonic V6E Non-interlaced monitor, 28 dpi**
- **ET-4000/W32 VL-B Graphic Accelerator w/1MB** Max 1280 x1024 16.7 million colors Drivers Support Windows 3.1 Auto CAD R.12,OS/2V.2.0
- **2 button Hi-Re serial Mouse**
- **Free Software Option**

**486DX-33 $1995 486DX2-66 $2195**

**486DX2-50 $2095**

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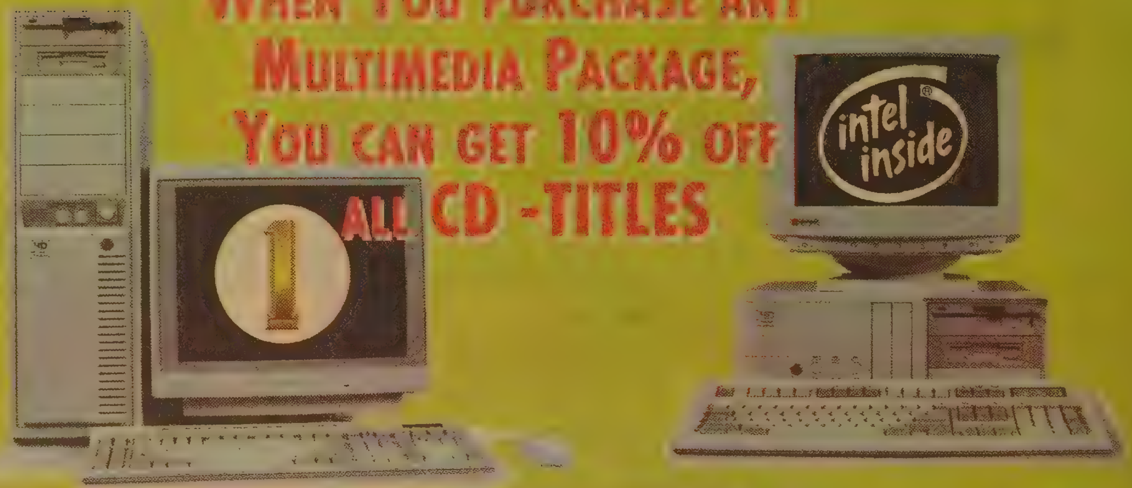
**SUNNYVALE TEL: (408) 720-0493**
**1196 KERN AVE., SUNNYVALE, CA 94086**
**FAX: (408) 720-1967**

**EL CERRITO TEL: (510) 528-0753**
**10005 SAN PABLO AVE., EL CERRITO, CA 94530**
**FAX: (510) 528-0757**

**SACRAMENTO TEL: (916) 483-4278**
**2530 WATT AVE., SACRAMENTO, CA 95821**
**FAX: (916) 483-4826**

# HD
COMPUTER



## WHEN YOU PURCHASE ANY MULTIMEDIA PACKAGE, YOU CAN GET 10% OFF ALL CD -TITLES

## UNBEATABLE CD-ROM TITLES PRICE

| | | |
|---|---|---|
| [illegible] | | |
| BUS001 | American Business Phone Book | $24.99 |
| BUS002 | Business and Economic Atlas | $29.99 |
| BUS003 | Guinness Disk of Records, MPC | $24.99 |
| BUS004 | Jets and Props | $24.99 |
| BUS005 | Lotus 123 V3.1 | $99.99 |
| BUS006 | Office & Home | $24.99 |
| BUS007 | Media Clips - 4 pack | $64.99 |
| BUS008 | Microsoft Works MPC | $64.99 |
| BUS009 | Ocean Digital Imagery Vol. 1 | $34.99 |
| BUS010 | Publish It 2.0 DOS | $34.99 |
| [illegible] | | |
| EDU001 | Animals V1.0 Software Toolworks | $29.99 |
| EDU002 | Britannica Family Choice | $29.99 |
| EDU003 | Desert Storm MPC | $24.99 |
| EDU004 | Dictionary of Living World | $24.95 |
| EDU005 | Family Education Collection | $29.99 |
| EDU006 | Mixed-up Mother Goose MPC, DOS | $24.99 |
| EDU007 | PC Graphic & Sound Demo | $23.99 |
| EDU008 | Playing w/ Language - English | $34.99 |
| EDU009 | Playing w/ Language - French | $34.99 |
| EDU010 | Playing w/ Language - German | $34.99 |
| EDU011 | Playing w/ Language - Japanese | $34.99 |
| EDU012 | Playing w/ Language - Spanish | $34.99 |
| EDU013 | Presidents | $99.99 |
| EDU014 | Shakespeare | $34.99 |
| EDU015 | Time Table of History | $24.99 |
| EDU016 | US History | $39.99 |
| EDU017 | USA Wars: Civil War | $44.99 |
| EDU018 | USA Wars: Korea | $44.99 |
| EDU019 | USA Wars: Vietnam (DOS) | $44.99 |
| EDU020 | USA Wars: World War II | $44.99 |
| EDU021 | Whale of Tale | $79.99 |
| EDU022 | Electronic Library of Art | $24.99 |
| EDU023 | Midi Music Shop | $29.99 |
| [illegible] | | |
| REF001 | Auther's Teacher Trouble | $34.99 |
| REF002 | Comptons MPC Encyclopedia | $99.99 |
| REF003 | Family Doctor | $34.99 |
| REF004 | The World of Flight | $34.99 |
| REF005 | MacMillans Children Dictionary | $39.99 |
| REF006 | Mayo Clinic Family Heath Book | $34.99 |
| REF007 | Reference Library | $34.99 |
| REF008 | Toolworks Encyclopedia | $69.99 |
| REF009 | Clipart Heaven | $34.99 |
| REF010 | KODAK Photo CD | $34.99 |
| REF011 | PC-SIG 12th Edition | $23.99 |
| REF012 | Mavis Teaches Typing MPC | $29.99 |
| REF013 | Microsoft Bookshelf | $69.99 |
| REF014 | Microsoft Works mpc | $69.99 |
| Entertainment | | |
| ENT001 | Amanda Stories | $44.99 |
| ENT002 | Adventure of Willy Beamish | |
| ENT003 | Annable's Dreams Egypt | $69.99 |
| ENT004 | Mirror Mirror | $34.99 |
| ENT005 | Barney Bear | $34.99 |
| ENT006 | Mantis Expermental Fighter | $39.99 |
| ENT007 | Battle Chess Enhanced | $29.99 |
| ENT008 | Beauty and Beast | $24.99 |
| ENT009 | Carmen San Diego | $29.99 |
| ENT010 | CD Game Pack II | $29.99 |
| ENT011 | Let's Play | $34.99 |
| ENT012 | Chess Master 3000 MPC | $24.99 |
| ENT013 | CIA World Fact Book | $24.99 |
| ENT014 | Composer Quest MPC | $59.99 |
| ENT015 | Dinosaur Adventure | $34.99 |
| ENT016 | Jones in Fast Lane MPC | $24.99 |
| ENT 017 | King's Quest V | $29.99 |
| ENT018 | Library of Futured 1st | $54.99 |
| ENT019 | LOCM from Lucas MPC | $29.99 |
| ENT020 | Macromedia Action for Windows | $39.99 |
| ENT022 | MIDI Music Shop | $31.99 |
| ENT023 | Money Island | $29.99 |
| ENT024 | Peter and the Wolf | $24.99 |
| ENT025 | Oldies But Goodies | $34.99 |
| ENT026 | Brain Drain | $34.99 |
| ENT027 | Secret Weapons of LuftWaffa | $34.99 |
| ENT028 | Sherlock Holmes | $29.99 |
| ENT029 | So Much Shareware I | $24.99 |
| ENT030 | So Much Shareware II | $24.99 |
| ENT031 | Sound Library | $29.99 |
| ENT032 | Space Adventure | $34.99 |
| ENT033 | Space Quest IV: Roger Wilco | $29.99 |
| ENT034 | Sport's Best | $24.99 |
| ENT035 | Stellar 7 DOS | $24.99 |
| ENT036 | Tempra Access Photo CD | $29.99 |
| ENT037 | Futura | $34.99 |
| ENT038 | Total Baseball | $39.99 |
| ENT039 | Wild Places | $24.99 |
| ENT040 | Wing Command & Ultima VI DOS | $29.99 |
| ENT 041 | Winzard MPC | $24.99 |
| Travel | | |
| TRV001 | Great Cities - Vol 1 | $24.95 |
| TRV002 | Great Cities - Vol 2 | $24.95 |
| TRV003 | National Geographic Mammals | $34.99 |
| TRV004 | US Atlas/World Atlas | $29.99 |
| TRV005 | US Atlas & Auto Map | $39.99 |
| TRV006 | World Atlas MPC | $29.99 |
| TRV007 | World View | $24.99 |
| TRV008 | National Park | $34.99 |

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### HD486 ISA Multimedia

- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- 1.44MB Floppy Disk Drive
- **CD ROM Drive**
- **130MB IDE Hard Disk**
- 1:1 Interleave 2 FL/2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-key Enhanced Keyboard, MITSUMI
- Mini-Tower case w/ 200W Power supply
- 14" SVGA Non-Interlaced Monitor 0.28DPI
- **Window Accelerator Card w/1MB**
- Sound Card
- **2 Speakers & Microphone**
- **2 Button Hi-Res Serial Mouse**
- **Free Software Option**

**486DX-33 $1495 486DX2-50 $1545**
**486DX-50 $1595 486DX2-66 $1695**

### HD486 VESA Multimedia

- 128K Cache Expandable to 256KB
- 4MB RAM Expandable to 32MB
- **1.44MB Floppy Disk Drive**
- **CD ROM Drive**
- **210MB IDE Hard Disk**
- 1:1 Interleave 2 FL/2HD Disk Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-key Enhanced Keyboard, MITSUMI
- Mini-Tower case w/ 200W Power supply
- 14" SVGA Non-Interlaced 0.28DPI
- 32 BIT-VLB Graphic Accelerator
- Sound Card
- **2 Speakers & Microphone**
- **2 Button Hi-Res Serial Mouse**
- **Free Software Option**

**486DX-33 $1595 486DX2-50 $1645**
**486DX2-66 $1795**

### HD486 EISA VESA Multimedia

- 256K Cache Expandable to 512KB
- 8MB RAM Expandable to 256MB
- 1.44MB Floppy Disk Drive
- **TOSHIBA CD ROM Drive SCSI**
- **345MB SCSI Hard Disk**
- 32Bit EISA SCSI Controller
- 2 Serial, 1 Parallel, 1 Game Port
- 101-key Enhanced Keyboard, MITSUMI
- Mid-Tower case w/ 230W Power supply
- 14" VIEWSONIC 6E SVGA NI 0.28 DPI
- ET-4000/w32 VLB w/1MB
- **Pro Audio Spectrum 16**
- **2 Button Hi-Res Serial Mouse**
- **Free Software Option**

**486DX-33 $2695 486DX2-50 $2745**
**486DX2-66 $2895**

### CD-ROM

| | | |
|---|---|---|
| MITSUMI (INT) W/16bit card MPC/ 350MS | | $175 |
| TOSHIBA XM-3401B/SCSI | (INT) | $395 |
| SONY 31A/controller card | | $190 |
| SONY 541 SCSI | (INT) | $385 |
| TEXEL/SCSI MD-3028/265MS w/caddy | (INT) | $355 |
| PANASONIC 562 (INT)/Double Speed | | $210 |

### SOUND CARD

| | |
|---|---|
| SOUND BLASTER PRO | $150 |
| SOUND BLASTER PRO 16 | $160 |
| PRO Audio Spectrum 16 | $160 |
| PRO STUDIO Spectrum | $250 |
| SOUND BLASTER compatible/ microphone, speaker | $88 |

## UNBEATABLE MULTIMEDIA PACKAGE

### Affordable Package for your Family

**MITSUMI** MPC CD ROM
(INT)AT BUS 350MS 150 KB/SEC
Photo CD Compatible
- 16 Bit CD quality sound card
- Toolworks encyclopedia
- US ATLAS
- CARMEN SAN DIEGO
- Sound library

**$399**

### Affordable Package for your Family

**Panasonic** 562(INT) AT BUS
320 MS Double Speed 300KB/Sec
Photo CD Compatible
- Sound Blaster PRO 16
- M.S bookshelf MPC
- M.S works
- Kings quest
- Mother goose
- Sound library

**$469**

### Top Performance Package for Windows NT Users

**TOSHIBA**
XM-3401B (INT)SCSI CD ROM
Fastest CD ROM 200MS 350KB/Sec
Photo CD Compatible
- PRO Audio Spectrum 16
- Compton's MPC encyclopedia
- M.S. bookshelf MPC
- M.S. works MPC
- CD came pack II

**$699**

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SACRAMENTO
TEL : (916)483-4278 FAX : (916)483-4826

# HD
COMPUTER

**Twinhead Notebook**

## Twinhead Powerful Mono Notebook

- INTEL 486DX CPU
- 4MB RAM Expandable to 20MB
- 1.44MB Built-In Floppy Disk Drive
- One Serial Port, One Keyboard/Mouse Port
- 84 Keys Keyboard with 12 Fonction Keys
- MONOCHROME, 64 Shade Sidelit Display
- MS DOS 6.0, MS WINDOWS 3.1
- Physical Dimensions 8.5" x 11" x 1.8"
- Weight with Battery 5.8 LBS

| | |
|---|---|
| **486DX-33 with 130MB Hard Disk** | Only $2039 |
| **with 200MB Hard Disk** | Only $2179 |
| **486DX2-66 with 200MB Hard Disk** | Only $2639 |

## Twinhead Brilliant Color Notebook

- INTEL 486DX CPU
- 4MB RAM Expandable to 20MB
- 1.44MB Built-In Floppy Disk Drive
- One Serial Port, One Keyboard/Mouse Port
- 84 Keys Keyboard with 12 Fonction Keys
- 256 Color Display, Active Color Matrix
- Video Card w/512K RAM
- MS DOS 6.0, MS WINDOWS 3.1
- Physical Dimensions 8.5" x 11" x 1.8"
- Weight with Battery 6.3 LBS

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|---|---|
| **486DX-33 with 130MB Hard Disk** | Only [illegible] |
| **with 200MB Hard Disk** | Only [illegible] |
| **486DX2-66 with 200MB Hard Disk** | Only $4249 |

## Twinhead 4 Pounds Powerful Subnote

- 2MB RAM Expandable to 8MB
- 1.44MB External Floppy Disk Drive
- 85MB IDE Hard Disk
- One Serial / Parallel Port
- 79 Keys Keyboard
- 64 Gray Shades VGA Display
- PCMCIA Slot
- Built-In 2-Button Trackball
- MS DOS 6.0, MS WINDOWS 3.1
- Physical Dimensions 7.1" x 10" x 1.6"
- Weight with Battery 4LBS

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| **486SLC33** | [illegible] |

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|---|---|
| **Motherboard** | |
| PCI Mother board w/NCR SCSI Interface | $375 |
| S3 PCI Video Card | $425 |
| Pentium Mother board | Call |
| ZIF 486DX/SX/256K VL-B | $195 |
| ZIF 486DX/SX/128K VL-B | $175 |
| EISA 486DX /256K/3 EISA slots | $300 |
| EISA 486DX /256K/8 EISA slots | $350 |
| 486DX2-66/256K/CPU ISA | $645 |
| 486DX-33/128K/CPU | $445 |
| 386DX-40/64K/CPU | $180 |
| AMI | |
| Enterprise IV EISA/VL-B 486DX2-66/256K/CPU | $1295 |
| Enterprise IV EISA/VL-B 486DX-50/256K/CPU | $1245 |
| Enterprise IV EISA/VL-B 486DX-33/256K/CPU | $1150 |
| Super Voyager 486DX2-66/VL-B/256K/CPU | $1200 |
| Super Voyager 486DX33/VL-B/256K/CPU | $995 |
| MICRONICS | |
| 486DX-33/256K/CPU ISA | $690 |
| 486DX-50/256K/CPU ISA | $990 |
| 486DX2-66/256K/CPU ISA | Call |
| NX-30 486DX-33/256K/CPU VL-B | $850 |
| NX-30 486DX2-50/256K/CPU VL-B | $950 |
| NX-30 486DX2-66/256K/CPU VL-B | $1190 |
| E-3 486DX2-66/256K/CPU EISA | $1450 |
| EISA 486DX/256K/8 EISA slots | $400 |
| ORCHID | |
| 486DX33/DX2 50/DX2 66/256K VL-B | $350 |

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| **Hard Drives** | |
| Quantum ELS127A 127MB 17MS | $175 |
| Quantum ELS170A 170 MB 17MS | $195 |
| Quantum LPS 240A 240MB IDE | $235 |
| Quantum LPS 240S 240MB SCSI | $245 |
| Quantum LPS 525MB SCSI | Call |
| Conner CP 30104H 120MB 19MS | $185 |
| Conner CP30174E 170MB 17MS | $195 |
| Conner [illegible] 250MB [illegible] | [illegible] |
| Conner [illegible] IDE | [illegible] |
| Conner CP 540MB IDE | $540 |
| Conner CP 540MB SCSI | $560 |
| Fujitsu M2624 520MB IDE 14MS | $585 |
| Fujitsu M2624 520MB SCSI 11MS | $585 |
| Fujitsu M2266SA 1.2GB SCSI | $975 |
| Fujitsu M2652S 2.0GB SCSI | $1725 |
| Western Digital [illegible] IDE | [illegible] |
| Western Digital [illegible] | [illegible] |
| Western Digital AC2420 420MB IDE | $445 |
| Maxtor 7131A 130MB 15MS | $175 |
| Maxtor 7213A 210MB 15MS | $210 |
| Maxtor 7245A 245MB 15MS | $235 |
| Maxtor 7345A 345MB 14MS | $310 |
| Maxtor 7340S 340MB SCSI | $345 |
| Controllers | |
| 2F2/2HD IDE I/O | $25 |
| Anti-Virus VLB Controller | $79 |
| VLB SCSI II Controller | $289 |
| ADAPTEC | |
| Transor 8-Bit SCSI | $79 |
| 1542C ISA SCSI w/KIT | $245 |
| 1742A EISA SCSI w/KIT | $395 |
| 2742 TK EISA SCSI w/Kit | $395 |
| 2842 TK VESA SCSI w/Kit | $345 |

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| Controllers | |
| AMI | |
| EISA SCSI CACHE | $515 |
| ASUS | |
| [illegible] EISA SCSI Cache | $475 |
| [illegible] EISA IDE | [illegible] |
| ORCHID | |
| VLB IDE 2FL/2HD | $79 |
| ULTRASTOR | |
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| [illegible] | [illegible] |
| **Video Adaptors** | |
| ATI Graphic Ultra Plus/1MB and Mouse | $375 |
| ATI Graphic Ultra Pro/2MB VRAM | $525 |
| ATI Graphic Ultra Pro VL-B/2MB VRAM | $375 |
| ATI Graphic Ultra Pro EISA/ 2MB VRAM | $395 |
| Diamond Speed Star 24X/1MB Hi-Color | $175 |
| Diamond Stealth 24/1MB | $185 |
| Diamond Stealth 24 VL-B/1MB | $210 |
| Diamond Stealth Pro VL-B/2MB | $395 |
| Diamond Viper VL-B/2MB | $419 |
| Spider Black Window VLB w/2MB | $295 |
| Orchid Fahrenheit 1280/1MB | $165 |
| Orchid Fahrenheit 24-bit /1MB | $175 |
| Orchid Pro Designer IIs/1MB | $135 |
| Orchid Pro Designer IIs EISA/1MB | $175 |
| Orchid Fahrenheit VL-B/1MB | $210 |
| Orchid P9000/3MB | $425 |
| Cirrus Logic VL-B Graphic Accelerator/1MB | $135 |
| Cirrus Logic VI-B Graphic Accelerator/2MB | $165 |

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| **Video Adaptors** | |
| ET-4000/w32 Graphic Accelerator/1MB | $175 |
| Windows Accelerator Card/1MB | $85 |
| 16-bit SVGA Card/1MB | $80 |
| 16-bit SVGA card/512K | $65 |
| 16-bit SVGA card/256K | $50 |
| M.G.P. card | $20 |
| **Modems** | |
| Zoltrix 2400 Modem | $40 |
| Zoltrix 9600/2400 Fax Modem | $65 |
| Zoltrix 9600/2400 Fax Modem for Windows | $75 |
| Zoltrix 14400/14400 Fax Modem for Windows | $165 |
| Intel Satisfaction 200 96/24 Fax Modem | Call |
| Intel Satisfaction 400 96/24 Fax modem | Call |
| **Monitors** | |
| 14" VGA Mono Monitor | $120 |
| 14" VGA Monitor .39 dpi (1024x768) | $225 |
| 14' SVGA Monitor .28 dpi (1024x768) | $275 |
| 14" SVGA non-interlaced monitor .28 (1024x768) | $295 |
| MAG | |
| [illegible] | [illegible] |
| MX17F 17" Flat 1280x1024 .28 NI | call |
| **VIEWSONIC** | |
| Viewsonic 5E 14" 1024x768.28 NI | $415 |
| Viewsonic 6E 14" 1024x768.28 NI | $335 |
| Viewsonic 15 15" 1280x1024 .28NI | $495 |
| Viewsonic 7 17" 1280x1024.28 NI | call |
| Viewsonic 17 17" 1600x1280.28NI | call |
| Viewsonic 20 20" 1600x1280.28 NI | call |
| Viewsonic 21 21" 1600x1280.28NI | call |
| **SONY** | |
| [illegible] 14" 1024x768.25 NI | [illegible] |
| 1604S 17" 1024x768.25 NI | call |
| 2036S 20" 1280x1024.30 NI | call |
| **NEC** | |
| 3FGE 15" 1024x768.28 | $599 |
| 4FGE 15" Flat 1024x768.28 NI | [illegible] |
| 5FG 17" Flat 1280x1024.28 NI | $1099 |
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# UNIX for Pre-Teens

## *First Steps In Using UNIX-Based Systems*

**BY BENNETT FALK**

A few months back, this space presented a discussion of this culture's fascination with dinosaurs and its relation to the problems of marketing operating system software. Allusions were made to the film version of *Jurassic Park*, but at the time, no mention was made of the high point of that film. With bloodthirsty dinosaurs at the door, a twelve-year-old girl sat down at a very spiffy Silicon Graphics workstation. On the screen, brightly colored cubes formed a tree-shaped structure that receded into the horizon. Wide-eyed, the girl uttered the immortal words:

### "THIS IS UNIX. I KNOW THIS!"

**UNIX**

After nearly twenty-five years of complaints about the difficulty of learning UNIX, here at last was the simple declaration that UNIX is something accessible to any reasonably bright twelve-year old. (Never mind that the neon cubes provoked outright, prolonged laughter from anyone in the theater who had actually used UNIX.)

UNIX is a multiuser, multitasking operating system developed twenty-five years ago at Bell Laboratories. To use UNIX effectively, you'll need to learn a few commands and an assortment of facts about the filesystem and the command environment. What follows is a beginner's guide to using UNIX suitable for ages twelve and up.

### LOGGING IN

The first step in using any UNIX system is to log in to it. The UNIX login prompt looks like this:

```
login:
```

The login prompt may not look exactly like that; it may be accompanied by a brief message identifying the computer or giving special login instructions for that system.

In response to the login prompt, enter your login name exactly as it was given to you. UNIX systems are case sensitive, so be careful about capitalization. The characters you type in response to the login prompt are echoed on the screen as you type them. If you make a mistake you can back over the letters you've already typed one at a time by pressing the DELETE key. (If DELETE doesn't work, use BACKSPACE.) When you've entered the login name correctly, press the RETURN key. You should almost immediately be prompted for your password:

```
Password:
```

Enter your password. At this prompt, characters you type are not echoed. This is intentional: maintaining the privacy of your password protects your login account and the computer from unauthorized use. You can correct typing mistakes in your password entry by using the DELETE key carefully to backspace over the mistyped letters.

If you've entered your login name and password correctly, you'll be admitted to the system, and what happens next depends on how the computer is configured.

After you've logged in successfully, the system may need some additional information to set things up for you correctly. The most common piece of information asked for is terminal type. Be prepared for something like:

```
Term? (vt100)
```

This prompt asks you to enter what brand of terminal you're using (or, for users connecting to the UNIX system from another computer, what brand of terminal your communication software is emulating). The prompt above proposes vt100 as a default.

The selection of a terminal type affects how things look on your screen. UNIX has a database of features for common terminal types, and some of the programs you run on the UNIX computer will check the terminal type you set and try to use features of that terminal. It does this by sending control codes the terminal recognizes. If the terminal type is set correctly, these control codes will do things like clear the screen, position the cursor, or turn special video attributes on or off. If the terminal type is not set correctly, your display may be difficult to read, and programs that try to control the screen may be difficult to work with.

If you know what sort of terminal you're emulating, enter an identifier for that terminal. Unfortunately, there is no universally appropriate response to the question about terminal type. On many systems the names "dumb" or "dialup" can be used to select a minimally featured terminal type that can be used safely.

Once you're past the login procedure and have specified a terminal type, you'll receive a prompt from the UNIX command interpreter (or "shell"). Exactly what you get depends on which UNIX shell you use and how it is configured. The shell prompt can be something simple like a "$" (the default prompt for the Bourne Shell) or a "%" (the default prompt for the C Shell). You may encounter a UNIX system that has been set up to use a program other than the standard shell programs.

### THE UNIX FILESYSTEM

Whenever you log in to a UNIX system, your login session has a current or working directory. By default this is the home directory that is allocated for your login account. During a login session you can change the working directory, but you'll always be in one directory or another.

UNIX organizes files and directories into a tree-shaped hierarchy that lets users refer to any directory or file by pathname alone. The pieces of this tree are not usually displayed as three-dimensional neon blocks, but regardless of how they're displayed, you won't have to know which disk contains the directory or file you're interested in. The entire filesystem is a

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series of directory paths branching out from a "root" directory. To refer to the root directory in a command, use a "/" by itself.

A directory can contain files or other directories, and the names of nested directories can be strung together to make a pathname. There are two kinds of pathnames. Whenever the "/" character occurs at the beginning of a pathname, the name describes a path that starts with the root directory. Pathnames beginning with "/" are called absolute pathnames. "/" is also used in pathnames as a separator for directory or file names. Pathnames that don't begin with "/" are relative pathnames: they are interpreted in relation to your current working directory. When you're composing a relative pathname, you can use "." to refer to the current directory and ".." to refer to the parent directory of the current directory.

Unlike some other operating systems, UNIX doesn't classify files by type. Some files contain nothing but printable characters. These are ASCII files. Files that consist of sequences of bytes that aren't printable are called "binary." In general, you should avoid printing binary files or displaying them on your terminal.

Many of the commands UNIX provides are just tools to work with files and directories. The commands you'll use most often are "ls" (list a directory's contents), "cd" (change directory), and "pwd" (print working directory). More detailed explanations of these commands are given below.

## THE UNIX COMMAND ENVIRONMENT

When you log in to a UNIX system, you'll work with a command interpreter or shell program that accepts commands, executes programs for you, and manages the environment of your login session. There are three common shell programs in use on UNIX systems today: the Bourne Shell, the Korn Shell, and the C Shell. The Bourne and Korn shells are similar. The default prompt for them is "$". The C Shell is different, particularly in its commands for managing the shell environment. The default C Shell prompt is "%". Regardless of which shell you use, your login session's environment will consist of settable variables that control your access to commands and how the system behaves. By resetting these variables, you can customize your login session. Common items in the UNIX shell environment are:

**HOME** Full pathname for your home directory

**LOGNAME** Your login name

**MAIL** Full pathname to the file that is your system mailbox

**PATH** A list of directories that the system will search to find commands that you execute

**SHELL** The default command interpreter for your login account

**TERM** The terminal type you're using

**TERMCAP** Either a description of your terminal's capabilities or a full pathname to the file containing the terminal capabilities database

The environment variables that have the most dramatic effect on how your login session behaves are PATH and TERM. If the TERM variable is not set correctly, you may have difficulty using programs that try to manipulate your screen. The PATH variable controls the list of directories that will be searched when the shell needs to look up a command for you. If you know what directory a program is stored in, you can always execute the program by typing its full pathname. For example, if the finger program is in /usr/bin, you can execute finger by typing:

```
% /usr/bin/finger rosebody@well.com
```

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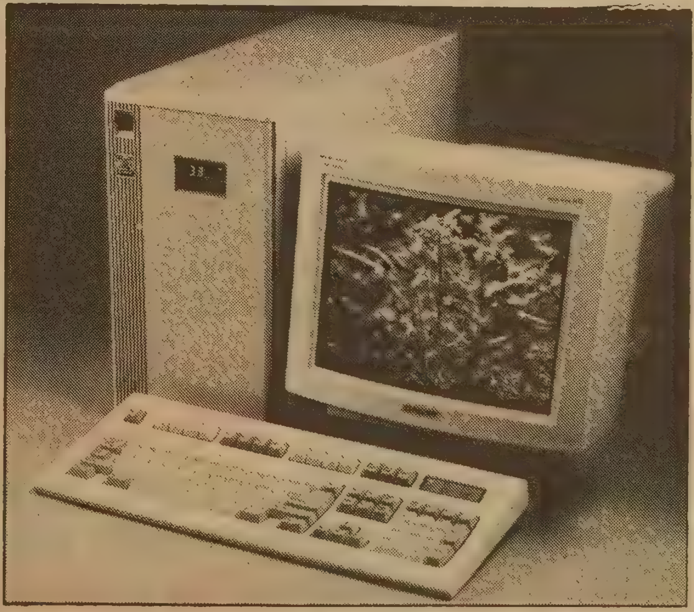

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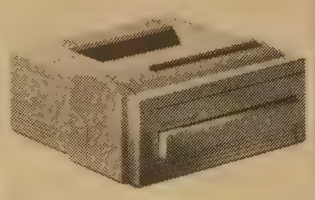

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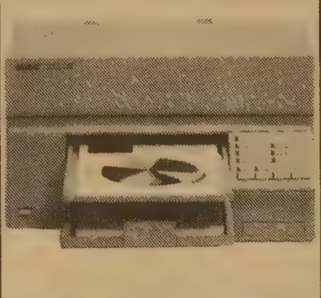

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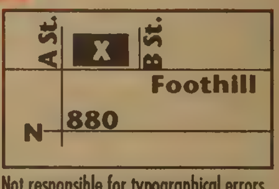

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# EIGHTEEN UNIX COMMANDS YOU SHOULD KNOW

UNIX systems provide a large number of single purpose commands that make up a versatile software "toolkit." Here are brief summaries of fourteen of the most commonly used UNIX utilities. For a full explanation of these commands, use the UNIX online manual. For example, to see the online article about the ls command type "man ls".

**cat filename** Display the named file on the screen. Similar to the DOS "type" command.

**cd [pathname]** Change the working directory to the named directory or to the user's home directory if pathname is omitted.

**compress filename compress -d filename** Compress (or with the -d option, de-compress) the named file. The compressed file is named filename.Z, and will be one-third to one-half the size of the source file. Compressed files are binary and should be passed through uuencode before being sent via mail. The de-compress option looks for filename.Z, decompresses it, and replaces it with filename.

**cp filename newname** Make a copy of a file. If newname is a directory, a copy of the file will be placed in that directory.

**file filename** Make an educated guess about what kind of file "filename" is. (This is helpful in distinguishing ASCII from binary files.)

**grep pattern file** Display any lines in the named file that contain the specified pattern.

**head filename** Display the first few lines of a file.

**ls [pathname]** List the contents of the named directory or the current directory if pathname is omitted.

r the named command.

ıame.

is a directory, move the file to that directory.

is no way to "undo" the effects of rm.

ctory must be empty.

**code filename.uue** Uuencode and uudecode are commands to convert binary files into and out

grams (mail, for example) that are not intended to handle binary data.

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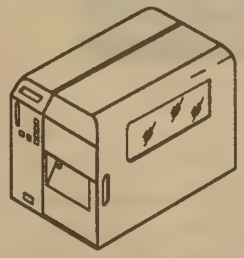
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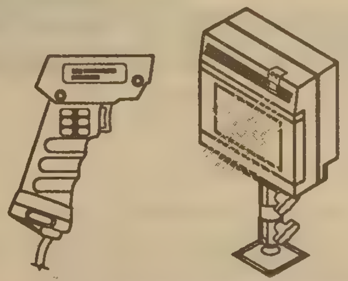
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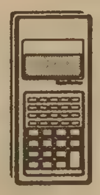
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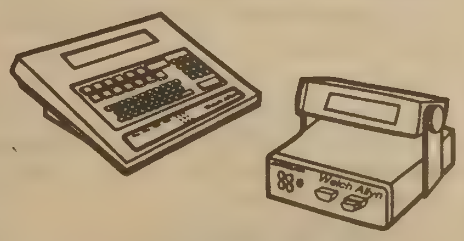

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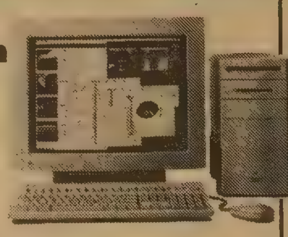

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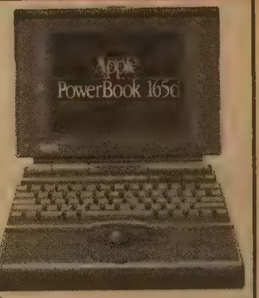

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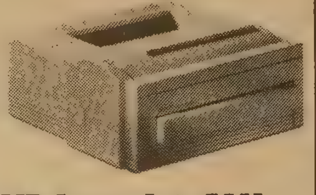

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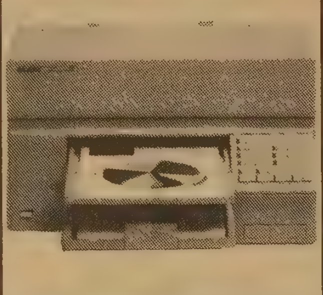

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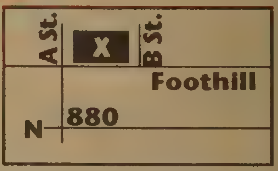

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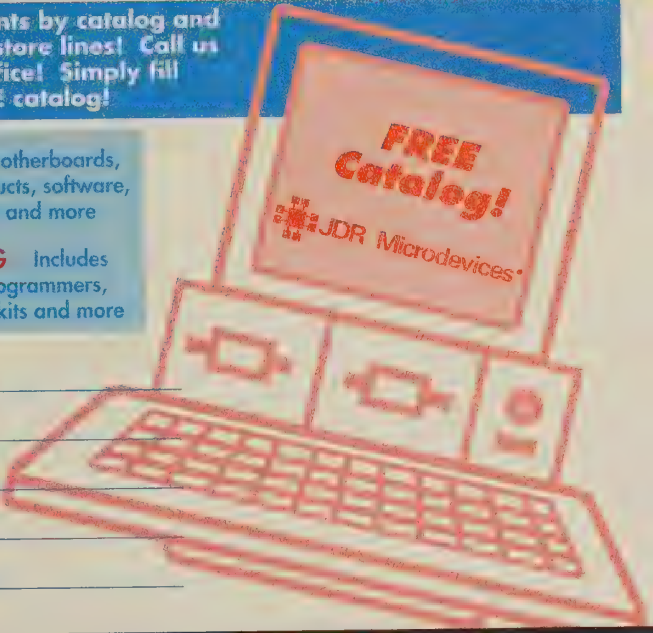

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# EIGHTEEN UNIX COMMANDS YOU SHOULD KNOW

UNIX systems provide a large number of single purpose commands that make up a versatile software "toolkit." Here are brief summaries of fourteen of the most commonly used UNIX utilities. For a full explanation of these commands, use the UNIX online manual. For example, to see the online article about the ls command type "man ls".

**cat filename** Display the named file on the screen. Similar to the DOS "type" command.

**cd [pathname]** Change the working directory to the named directory or to the user's home directory if pathname is omitted.

**compress filename compress -d filename** Compress (or with the -d option, de-compress) the named file. The compressed file is named filename.Z, and will be one-third to one-half the size of the source file. Compressed files are binary and should be passed through uuencode before being sent via mail. The de-compress option looks for filename.Z, decompresses it, and replaces it with filename.

**cp filename newname** Make a copy of a file. If newname is a directory, a copy of the file will be placed in that directory.

**file filename** Make an educated guess about what kind of file "filename" is. (This is helpful in distinguishing ASCII from binary files.)

**grep pattern file** Display any lines in the named file that contain the specified pattern.

**head filename** Display the first few lines of a file.

**ls [pathname]** List the contents of the named directory or the current directory if pathname is omitted.

**man command** Display the online manual's article for the named command.

**mkdir dirname** Create a directory with the specified name.

**mv oldname newname** Rename a file, or if newname is a directory, move the file to that directory.

**passwd** Change your password.

**pwd** Print the name of the current working directory

**rm filename** Remove the named file. Be careful, there is no way to "undo" the effects of rm.

**rmdir dirname** Remove the named directory. The directory must be empty.

**tail filename** Display the last few lines of a file.

**uuencode filename < filename > filename.uue uudecode filename.uue** Uuencode and uudecode are commands to convert binary files into and out of an ASCII format that can safely be sent through programs (mail, for example) that are not intended to handle binary data.

**who** List currently logged in users.

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However, if the PATH variable in your environment includes the directory /usr/bin, you can execute finger by just typing its name:

```
% finger rosebody@well.com
```

On most UNIX systems, you can have access to everything you need with only a few directories in your path: /bin, /usr/bin, /usr/local/bin. You may also want to add /usr/etc and, if your system has it, /usr/ucb.

On some systems, your current directory won't be included in the PATH by default. This can be very frustrating when you try to execute a program in the current directory. The ls command shows that the program is there, but attempts to execute it by name fail with a "Command not found" message. You can execute the program by full pathname, execute it by relative pathname (./programname), or add the current directory to your PATH. (See the example below.)

## SETTING AND DISPLAYING ENVIRONMENT VARIABLES

How you set environment variables depends on which shell program you use. The Bourne and Korn shells use the same syntax to set variables. For example, this is how to set the PATH variable using either of these shells:

```
$ PATH=:/bin:/usr/bin:/usr/local/bin::
$ export PATH
```

The variable is set in the first command. The "export" command makes the variable available to any programs you start from the session in which the variable was set. To do the same thing in the C Shell, use the setenv command:

```
% setenv PATH :/bin/usr/bin/local/bin:
```

When you're entering directory names for the PATH variable, use a ":" to separate the names. If the list of directories begins with a ":", your working directory will be searched first. Directories are searched in the order they appear in the PATH variable. If you want your current directory elsewhere in the PATH variable, use :.: (colon dot colon) at the proper location. For example, Bourne shell users can put the current directory at the end of the PATH with this command:

```
$ PATH=:/bin:/usr/bin:/usr/local/bin:.:
$ export PATH
```

With sh or ksh, the set command can be used to display all the variables in your environment. Csh users should use the command "printenv". If you want to examine the value of only one variable, use the echo command. For example, this command displays the current PATH setting:

```
$ echo $PATH
:/usr/local/bin:/usr/ucb:/bin:/usr/bin:
```

When a variable name is preceded by a "$", UNIX substitutes the current value of the variable. The same convention is used for all the shells. ■

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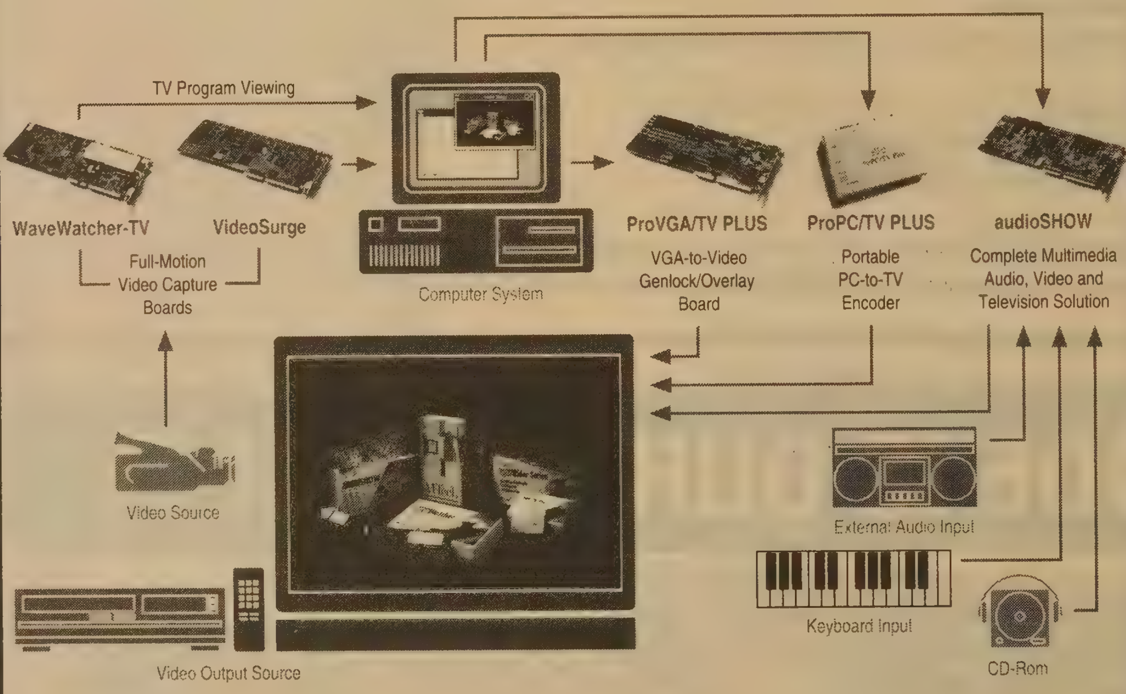

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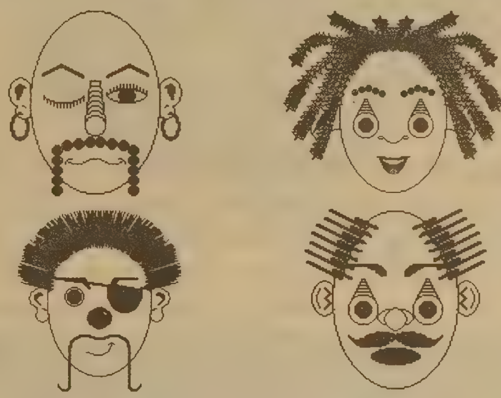

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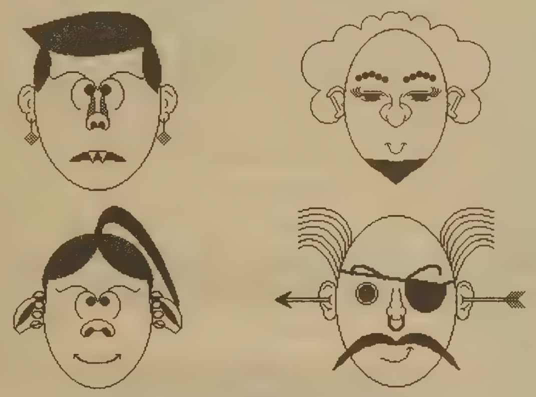

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# Want Effective Teamwork? Try Chartering

## *A Chartering Exercise Can Be The Heart Of The Cultural Change Process; It Replaces Bureaucracy With Entrepreneurship*

**BY N. DEAN MEYER**

It's easy for people in a department to say they're going to work together as one big happy family, but reality sets in when I feel you are stepping on my turf or you think I am putting someone else's interests ahead of yours.

Although turf battles and political skirmishes may seem unavoidable, they're not. But teamwork requires more than goodwill. Defining clear boundaries is a good start. Beyond that, collaboration depends on each group clearly understanding its symbiotic relationship with the other groups within the department.

This also may sound simple, but defining those relationships and working out issues of interdepartmental accountability requires a paradigm shift.

What's the paradigm shift? A move toward an entrepreneurial perspective within the department.

Not so long ago, "users" of corporate services such as Information Systems (IS) were considered a bain. Now, thanks to the Total Quality Management movement, most staff professionals recognize that they have customers, not victims and antagonists, throughout the company.

People also need to understand their intradepartmental customer-supplier relationships. This paradigm shift is the basis for high-performance teamwork. Unfortunately, it is still something of a stretch for people to view their peers within the same department as customers.

To illustrate what we mean by this entrepreneurial culture, let's use the example of an IS department. To establish an entrepreneurial culture, every group in the IS organization should be viewed as an independent entrepreneurship.

Within a project team, one of the groups can be considered the "prime contractor." Others on the project team can be viewed as subcontractors, selling to the prime contractor either their time or specific deliverables (such as modules of a system). While all strive to please the client, with this arrangement it is clear who is the project manager and precisely what each of the others are to contribute to the team.

This entrepreneurial culture naturally encourages effective teamwork. What if every worker building your house thought he or she worked directly for you? Each might have a different impression of what you want, and collaboration within the work team would be strained. Meanwhile, both authority and accountability would be unclear, leaving you in confusion when things go wrong. Fortunately, you may hire a prime contractor to manage the job, and everyone else understands his or her role as a subcontractor.

Similarly, internal customer-supplier relationships within the department avoid the problems that plague many teams. Instead of everyone attempting to look after the whole project (i.e. where roles and accountability are unclear), a prime contractor is accountable to the client to deliver the end result—a project manager and systems integrator at the highest level. The prime contractor then "hires" subcontractors who are project managers of their pieces of the project; subcontractors are accountable to the prime, not to the client. Thus, accountability and authority are matched and clearly specified.

**To establish an entrepreneurial culture, every group in the IS organization should be viewed as an independent entrepreneurship.**

Of course, paradigm shifts don't occur without effort. We have had success engineering this change in dozens of companies using a document we call a "charter." Each group's charter specifies its internal customers and the products they sell to each. It also lists their suppliers and the products they buy from each.

Chartering has a powerful impact on the department's culture. Each manager builds a sense of ownership of a piece of the department's business; this supports an entrepreneurial attitude. Charters determine boundaries that prevent territorial disputes. Each manager clearly focuses on his or her customers, and becomes conscious of the need to earn market share through superior performance.

Chartering initiates the concept of contracting, both with clients outside the department and with other groups within the department, to clarify mutual commitments and accountability. Charters explicitly define interdependencies, which encourages teamwork. In summary, a chartering exercise can be the heart of the cultural change process; it replaces bureaucracy with entrepreneurship.

Unfortunately, when IS managers are asked to identify their customers, many lack a precise definition of the term. The following six guidelines have proven helpful:

1. A "customer" is someone who "buys" things from a group. Customers can be clients or others within the department. Anyone may be a customer to anyone else, and in the next project the two parties may reverse roles. The word "customer" refers to a relationship rather than a group of people.
2. A "client" is someone who consumes the final product or service of the department; it refers to a group of people. In IS, they are frequently called "users." Clients may be individuals or consortia, i.e. a group of individual clients who together purchase the services of the department.
3. When people within the IS department use their own services for their managerial purposes (consumption, not for resale; e.g.

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*N. Dean Meyer, an internationally recognized authority on the management of information systems, is president of NDMA Inc., based in Ridgefield, CT. Through presentations, consulting, research and training, NDMA helps clients build high-performance IS organizations.*

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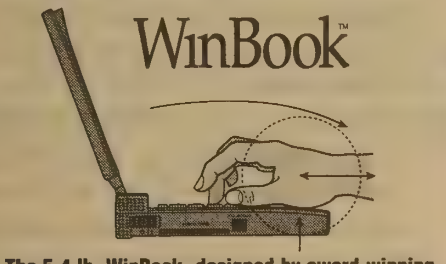

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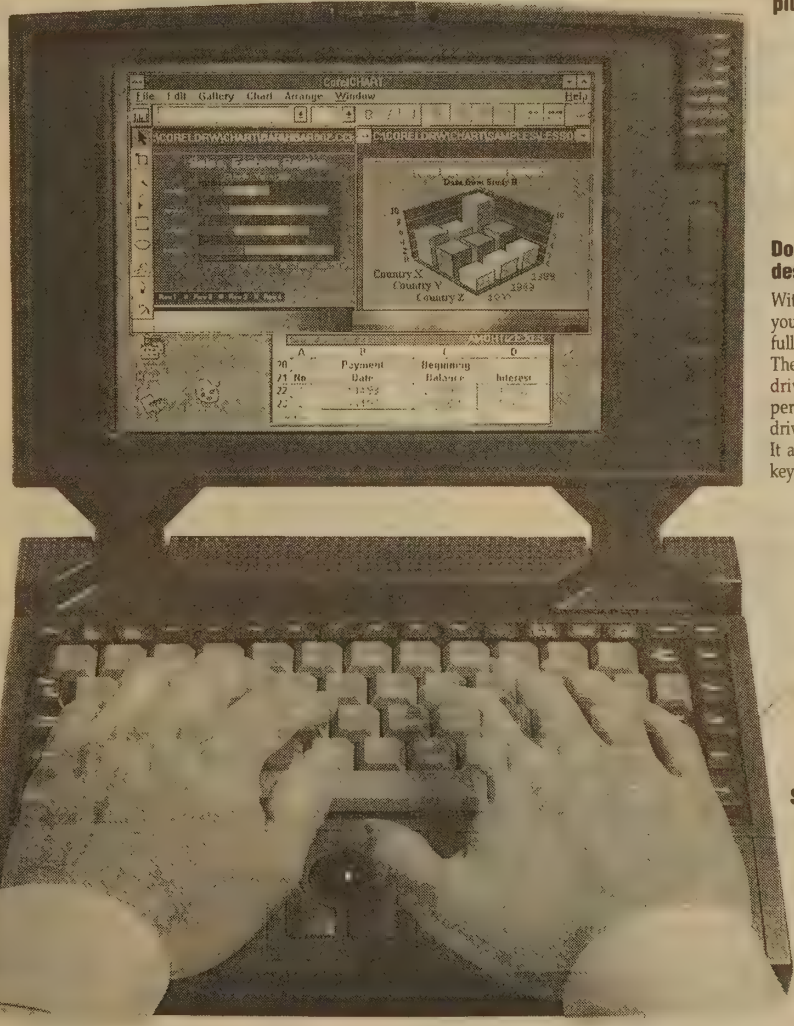

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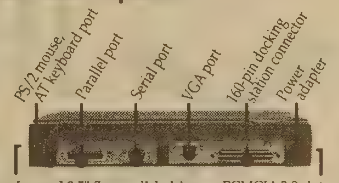
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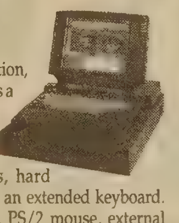

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an IS manager acquiring a PC for his or her own use), then treat them as clients (the same as those outside of the department).

Thus, any manager within the department may wear either of two "hats":

- They are a client when buying a product for their own use as would any client.
- They are a functional manager when they are buying a product because of the special requirements emanating from their function.

To test whether one is acting as a client or within one's functional role, ask: "Am I buying the product for the same reasons anyone else in the corporation would, or only because I am in this particular job?"

4. When people within client departments (outside of IS) provide services for use by others (not for their own consumption, i.e. when they are acting as decentralized IS staff rather than end-users), then do not think of them as clients. These "decentralized IS staff" should be treated the same as their counterpart service providers within the IS department, as if they were living under the same charter. This avoids replicating everything that is listed under the various groups within the staff department under the client.

5. A group can be its own customer. This section of the charter captures activities one part of the group does for others in the group. For example, one applications developer may sell another a module that is incorporated into a larger system.

6. Don't worry about whether or not you charge for the product. In a market economy, cross-charges among groups within the staff department may be allowed. However, this is not essential to make charters work. The key to high-performance teamwork is treating other groups as one's customers and suppliers, whether or not money changes hands. Ignoring chargebacks, the real issues are customer focus and teamwork with clear accountability.

Recognizing internal customer-supplier relationships avoids the trap of having to represent projects in the organizational structure—or, in other words, you will not be forced to put people under a common boss to get them to work together as a team. Instead, project teams can be formed dynamically as needed. Each project can include the right specialists, drawing from existing groups based on the unique requirements of the project. This provides great flexibility—from rapid response on simple projects, to large project teams drawing on a wide range of specialists for complex projects.

Chartering also avoids potential problems with "business process reengineering." No single workflow can describe the work of the IS department. Instead, a process can be tailored to the needs of each project by tracing its own unique series of customer-supplier relationships.

The chartering exercise and the rules presented here have proven a powerful transformational tool in a wide variety of organizations. One caution deserves mention: if the organizational structure is confused or unclear, charters can exacerbate internal territorial problems. Chartering is not a substitute for sound organizational design; charters complement healthy structure with a healthy culture and businesslike practices. In a well-designed organization, charters can be the basis for high-performance teamwork, customer focus, and an entrepreneurial spirit. ■

*This article is based on material from* Structural Cybernetics, *a study which presents an innovative new model for redesigning organizations and details a participative process of structural change. A complimentary brief summary is available to* MicroTimes *readers by calling NDMA at (203)431-0029.*

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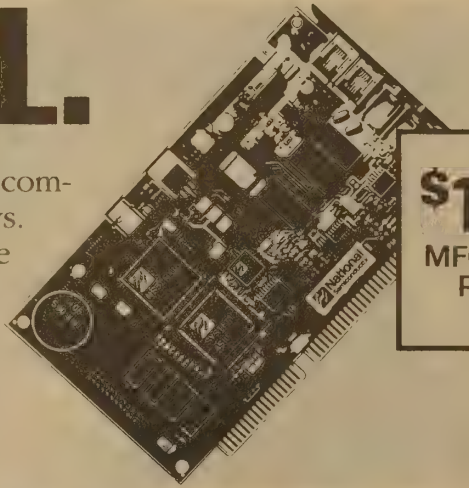

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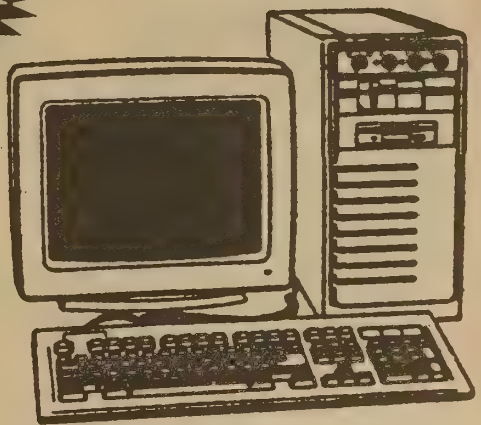

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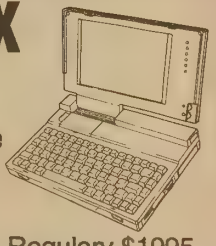

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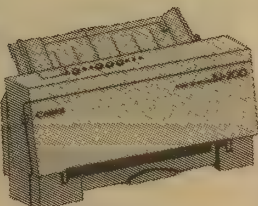

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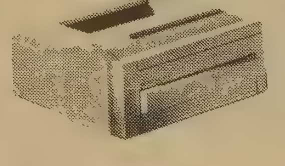

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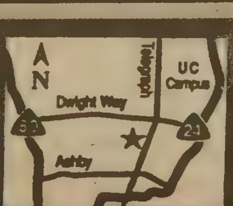

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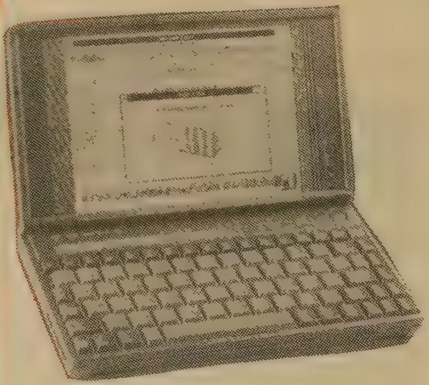

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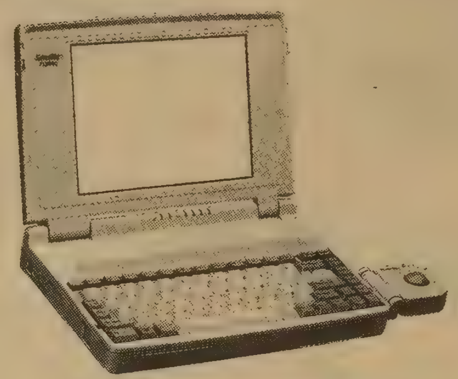

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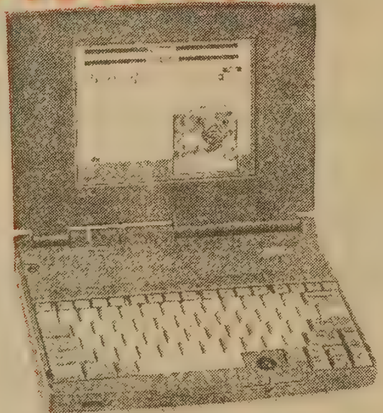

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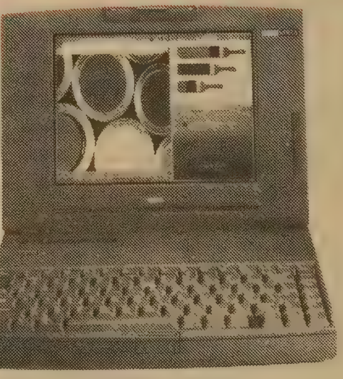

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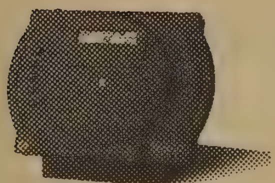

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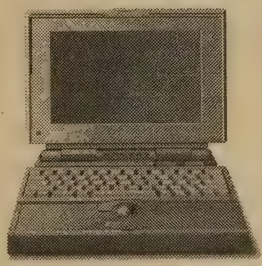

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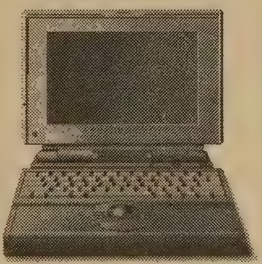

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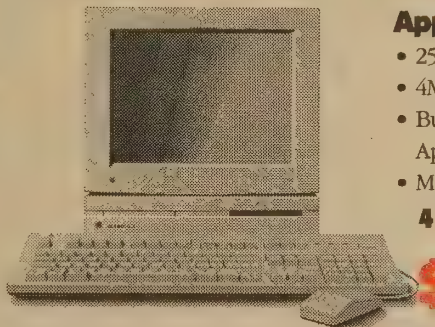

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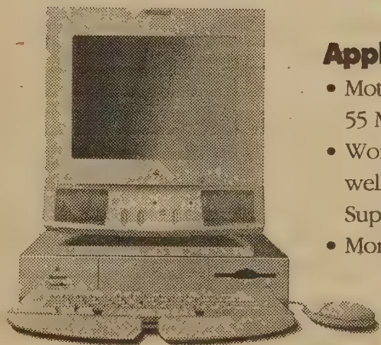

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# Marketing and Sales Automation

## *How PC MSA Is Used To Improve Sales And Marketing Effectiveness*

BY RICHARD CLARKE

Successful automation of your sales and marketing process is an important opportunity for most businesses today. For small- to mid-sized companies, the most effective choice typically begins with a PC-based system. PC-based Sales and Marketing Automation (PC MSA) promises to increase profits by increasing the effectiveness of the marketing and sales efforts.

To understand PC MSA, and how it can deliver its promise, it is important to look at how it is used—what elements and activities of your business will be affected. The most common form of PC MSA is the "contact management" system. These were originally designed to improve the management of sales contacts (the individuals to whom a salesperson sold), and have grown into systems with greater management capabilities. Reviewing how you are using (or are not using) these tools can tell you a lot about your efforts at sales automation.

### THE FOUR LEVELS OF PC MSA

Looking at PC MSA as a process that evolves through four levels provides a good framework for understanding the uses of PC MSA. In this approach, each stage is defined by what is being managed by the users of the system.

**Level 1: Sales contact management.** Salespeople use the system to improve their selling to customers and prospects.

**Level 2: Salesperson self-management.** Salespeople use the system to plan and schedule their time and customer follow-up. The system is also used to measure and report performance.

**Level 3: Sales group management.** The sales manager uses the system to track performance of individual salespeople, the combined sales group, and to make it easier to add new salespeople as personnel changes. At this point, the system can also begin to be used to support sales forecasts.

**Level 4: Marketing management.** At Level 4 the system is used for identifying profiles of successful customers and for developing techniques to target prospects with superior potential. The system is used for lead fulfillment and qualification. It is also hopefully used as a critical tool in outbound targeted marketing campaigns.

### SELF-MANAGEMENT: THE KEY TO PC MSA SUCCESS

The key to successful PC MSA is to operate at Level 2 (Salesperson self-management) or higher. Level 1 (Sales contact management) impacts the individual sale by improving the salesperson's discipline at note taking and follow up. But at Level 2, you impact the individual sale as well as the sales process. Also, if you plan use of the system above Level 2 (for sales or marketing management), you need to achieve Level 2 use first. If not, you will be "pushing a rope," implementing a control and action system where the basic tools are not in place and will stifle success.

Operation beyond Level 2 depends on the company—its business and size. For example, in a sales company where all salespeople are 100% commission, you could view each salesperson as a separate business. In this situation it might not be worthwhile to use Level 3 sales (group management tools). However, you would still probably want to use Level 4's marketing management tools to manage and plan spending on advertising and promotion, and to find better ways to target good prospects and to keep in contact with them.

### HOW TO TELL WHERE YOU ARE NOW: ACTIVITIES AT EACH LEVEL

To understand PC MSA activities, look in detail at what is presently being done via the system—and what else is planned or needed. Looking at the "Four Levels of PC MSA" will help clarify this process and your analysis. It is important to remember that whether you are planning to implement a new sales automation system or want to improve your existing system, clarifying where you are, where you need to go, and how to get there will provide a good basis for understanding the various software and hardware options.

### MANAGE RELATIONSHIPS

Level 1 starts when a salesperson uses the contact management system to record notes and follow-up from the sales calls. Here they are using a contact manager to replace the manual notes they usually make. The mid-point at this level occurs when the salesperson looks at their system notes before making the next sales call to a customer or contact. This stored information is now used in the preparation for each sales call.

When the salesperson no longer looks to the traditional personal phone book, or on other paper systems for this information, the salesperson has fully achieved this first level. In other words, a personal system of isolated, paper notes has been replaced with the PC-based contact management system.

### MANAGE YOURSELF—THE KEY STEP

Level 2 starts when a salesperson looks at the contact management system for their schedule of things to do and calls to make. At this point the contact manager replaces the "Day Timer" or other scheduling system. This is the key step in using any PC MSA or contact management system.

The mid-point of Level 2 is when the individual salesperson uses the system to monitor actual daily and weekly performance, asking:

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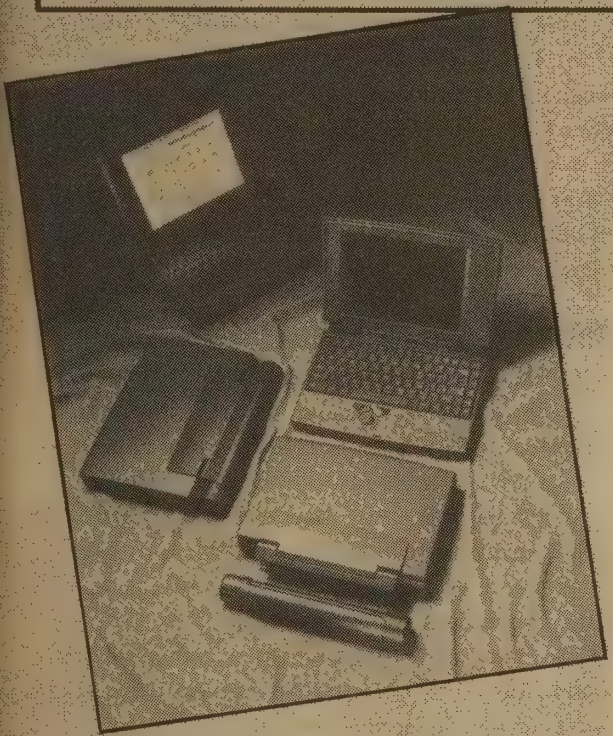

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- What calls and appointments were made?
- How did I spend my day? What was done or not done? Are there peaks and valleys in my performance? Can I plan the use of my time and energy better?
- What are my goals for the day? For the week?
- Are there recurring situations that point to a problem I need to work on?

Here, the contact management system is used to provide feedback. The intent of this feedback is to improve performance by making actual work experiences more visible, and making it possible to set measurable activity goals for ones'-self. Also, at this level, weekly or daily hardcopy reports are common. They let you more easily track your activity over time.

The end point of Level 2 is when the sales forecast and reporting tools are used for individual customers. This will highlight to the salesperson the connection between activity and income.

When the salesperson uses PC MSA data to project their own income, you know you have succeeded and will now have a solid data base from which to work. Until this is accomplished it will be hard to reliably use the data from your sales group.

## MANAGE A SALES GROUP

Once the sales force becomes successful Level 2 users, the sales manager can measure the group's performance and rate individual salespeople in meaningful ways. Sales-person turnover and territory changes will become easier. New measurements can be made to provide more insight into the sales process.

Sales managers use group and individual data to monitor various activity levels:

- How many (and what kind of) accounts are being actively worked by each salesperson and the sales group? Each day, week, and month?
- What are their forecasts?
- What is the level of "cold calling" that is done?
- How much time is spent with key accounts vs. other accounts?
- How do the individual salespeople stack up against one another in all these categories?

Sales managers can use the system to monitor sales forecasts, and to track sales prospects through the "sales funnel" and onto the customer list. They may even be able to know how long it takes to turn a lead into a customer (and how much it costs).

Sales managers may also use this information to balance territories and plan commissions. It becomes easier to bring new sales personnel into an existing account (or territory) because all of the account history is at their fingertips.

Level 3 users will have better information on the costs associated with the sales: How much does it really cost to make a face-to-face sales call vs. a telephone sales call? What does it cost to provide sales coverage to a big account vs. a small account?

These users may also use the system to test sales approaches. Different sales pitches can be tried and the results measured, letting the sales force focus on the way that gets the best result.

## MARKETING MANAGEMENT

Level 4 uses range from lead fulfillment and analysis

*continued on page 270*

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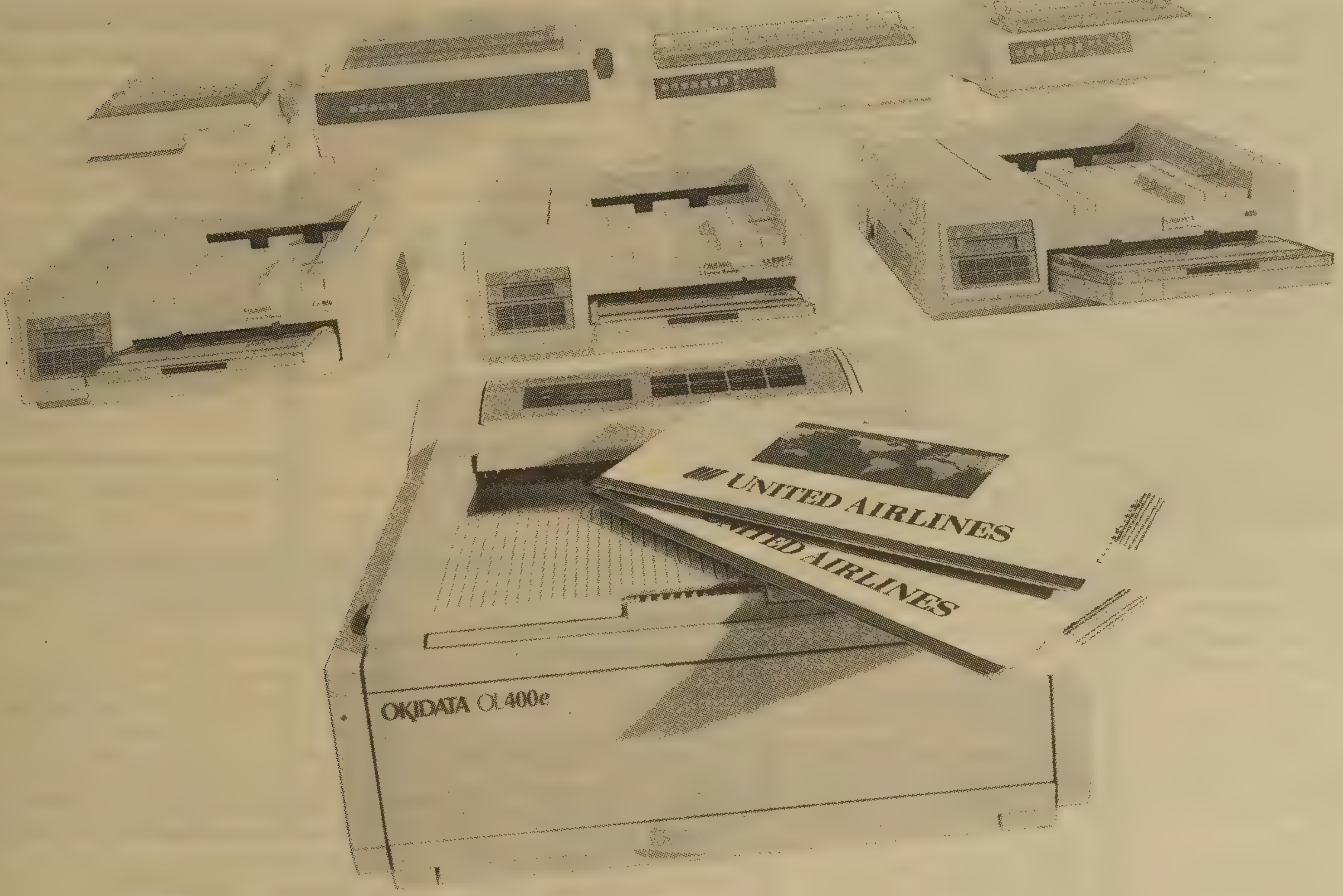

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| Printer Memory Upgrade (HP,Panasonic, etc) | Call |
| Creative LabsDiscovery CD Kit(8-Bit/16-Bit) | $379439 |
| Edutainment CD Upgrade Kit (8-Bit/16-Bit) | $499/489 |
| SoundBlaster ASP 16/SoundBlaster Pro Deluxe | $205/119 |
| Video Blaster | $339 |
| Media Vision FUSION CD 16 Mutlimedia (Int/Ext) | $479/$509 |
| Pro 16 Multimedia System | $879 |
| Pro Audio Spertrum 16 / Pro Audio Studio 16 | $159/209 |
| Logitech Soundman 16 | $159 |
| Mitsumi Internal CD-ROM w/16-Bit Controller 350ms | $165 |
| NEC CDR 84-1 Internal CD-ROM SCSI II 280ms 300K | $469 |
| Sony Internal 31A CD-ROM w/Controller Caddyless | $179 |
| TEAC CD-50 Internal CD-ROM 265ms 335KB | $389 |
| Texel 3024 Internal CD-ROM SCSI II 265ms 300KB | $359 |
| Toshiba 3401 Internal CD-ROM SCSI II 200ms 330KB | $380 |
| Coloroda Tape Backup 120MB/250MB | $145/175 |
| Coloroda Trakker External Tape Backup 120/250MB | $310/365 |
| 3M 2120 120MB/250MB Tape | $17 |
| UltraStor 34F VLB Controller (SCSIBusMastering) | $259 |
| Promise VLB IDE Cache Controller 4030 | $155 |
| Wonder System:IDE 4HD/2HD Controller | $25 |
| SCSI IDE 4FD CDROM Controller | $89 |
| VLB IDE 2HD/2FD 2S 1P Controller | $59 |
| IDE 4HD/4FD COEXIST SCSI MFM RLL ESDI | $59 |

## Monitors

| | |
|---|---|
| 14" SVGA Color Monitor 1024 .28 | $255 |
| 14" SVGA Color Monitor 1024 .28 NI 60Hz | $269 |
| 14" SVGA Color Monitor 1024 .28 NI 72Hz | $295 |
| Samsung 15"SyncM. 15C .28 1024 NI 72Hz | $439 |
| Samsung 17"SyncM. 4+ .31 1280 NI 72Hz | $799 |
| Samsung 17"SyncM. 5C .26 1280 NI 72Hz | $879 |
| ViewSonic 4E/6E(NI) 1024 .28 | $265/299 |
| ViewSonic 15 15" .28 70Hz Flat | $489 |
| ViewSonic 7/17 17" .28 NI 72Hz | $869/1039 |
| ViewSonic 20 20" .31 NI 72Hz | $1890 |
| SONY 14" 1430/17" 1730 .25 72Hz | $599/1049 |
| SONY 20" 2036/2038 .30 80Hz | $1999/2249 |
| NEC 15" 3FGe/4FGe 1024 | $609/$709 |
| NEC 17" 5FGe/21" 6FG | $1189/$2495 |
| MAG 15" 15F/17" 17 1280x1024.28 | $510/$990 |
| Nanao 15" Flat 1014 .28 | $735 |
| Nanao 17" 550iW | $1080 |

............ *And Much More* .............

## Graphic Cards

| | |
|---|---|
| Trident 9000 1024x768 w/512KB | $39 |
| Trident 8900C 1024x768 w/1MB | $55 |
| REALTEK 1024x768 w/1MB & Hi Color | $55 |
| Paradise Graphic Accelerator w/1MB&Hi-C | $99 |
| Orchid Fahrenheit VESA VLB w/1MB | $149 |
| Orchid Fahrenheit VESA VLB w/VA 1MB | $189 |
| Orchid Fahrenheit Plus w/1MB & Hi-Color | $149 |
| Orchid P9000 VLB w/3MB & True-Color | $369 |
| Orchid Celcius VLB w/2MB & True Color | $319 |
| Diamond 24X w/1MB & True-Color | $179 |
| Diamond Stealth 24VLB w/1MB True-Colo | $159 |
| Diamond Stealth Pro VLB w/1MB VRAM | $249 |
| Diamond Viper VLB w/2MB & True-Color | $389 |
| ATI Ultra Graphic Pro w/2MB VRAM VLB | $389 |
| Genoa 8500VL 24-Bit Accelerator | $109 |
| ATI Ultra Graphic Pro w/2MB(MCA,EISA) | $489 |
| ATI Ultra Graphic Pro w/2MB VRAM ISA | $479 |
| SummaSketch III 12x12 4 or 16 Buttons | $309 |

............ *And Much More* ............

## Softwares

| | |
|---|---|
| Microsoft DOS 6.0 Upgrade (NEW) | $48 |
| Microsoft DOS 6.0 Full Version | $40* |
| IBM OS/2 Version 2.1 (NEW) | $99 |
| Microsoft Windows 3.1 | $35* |
| Microsoft Access for Windows | $88 |
| Microsoft Excel 4.0 for Windows | $125 |
| Microsoft Entertainment Pack 1-3 | $30@ |
| Microsoft Flight Simulator 4.0 | $38 |
| Microsoft Word 2.0 for Windows | $125 |
| After Dark for Windows | $27 |
| Lotus Improv for Windows | $99 |
| WordPerfect for Windows 5.2 (NEW!) | $115 |
| BitFax for Windows w/OCR & BitCom | $69 |
| CD-ROM Software Package (5 CDs) | $89 |
| FrameMaker 3.0 for Windows | $309 |
| Norton Utilities 7.0 (NEW!) | $109 |
| QEMM 386 7.0 | $59 |

............ *And Much More* ............

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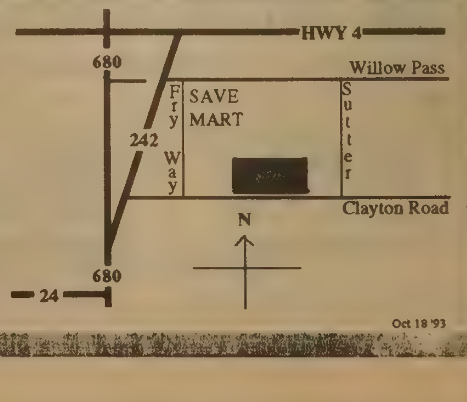

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1 YEAR LABOR
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SYSTEMS

## 486 Computer System

- 4MB RAM
- 1.2MB & 1.44MB Floppy Drives
- 2 Serial, 1 Parallel, 1 Game Port
- 101 Keyboard
- 200MB IDE Hard Drive
- SVGA Card w/1MB
- 14" SVGA Monitor (.28 dp)
- Mid-Tower Case
- MS-DOS 6.0

| | |
|---|---|
| **DX-33** | **$1385** |
| **DX-50** | **$1535** |
| **DX2-66** | **$1590** |

## 386 Computer System

- 4MB RAM
- 1.2MB & 1.44MB Floppy Drives
- 2 Serial, 1 Parallel, 1 Game Port
- 101 Keyboard
- 120MB IDE Hard Drive
- SVGA Card
- 14" SVGA Monitor
- Mini-Tower or Desktop Case
- MS-DOS 6.0

| | |
|---|---|
| **DX-33 or DX-40** | **$1100** |
| **SX-25 or SX-33** | **$1025** |

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## ADD ON BOARDS

| | |
|---|---|
| AT I/O Card 2S,1P,1G | $20 |
| Mono Graphic/Printer | $20 |
| IDE Dual HD/FD Cont | $20 |
| SCSI 1:1 HD/FD Cont | $99 |
| VGA Card w/256K | $40 |
| Trident SVGA w/1MB | $70 |
| C-Logic VLB SVGA w/1MB | $99 |
| Everex RAM 3000 Expansion Card | $90 |
| Everex RAM 10K Expansion Card | $150 |

## CASES AND POWER SUPPLY

| | |
|---|---|
| Baby AT w/200W Power | $70 |
| Baby Tower w/200W Power | $70 |
| Mid Tower w/220W Power | $110 |
| Full Tower w/250W Power | $160 |
| 200W (XT) Power Supply | $60 |
| 200W Power Supply | $60 |
| 230W Power Supply | $60 |

## DRIVES

| | |
|---|---|
| Frame for 3.5" Hard & Floppy Drive | $5 |
| **CONNER** | |
| CP-30254 250MB IDE | $270 |
| CP-30104 120MB 19ms IDE | $190 |
| CP-30204 200MB 16ms IDE | $265 |
| **MAXTOR** | |
| 213MB 15ms SCSI HD | $275 |
| 245MB 15ms SCSI HD | $300 |
| LXT-213A 212MB 16ms IDE | $265 |
| LXT-7245A 245MB IDE | $270 |
| LXT-7345A 345MB IDE | $320 |
| **TEAC** | |
| 1.2MB 5.25" | $56 |
| 1.44MB 3.5" | $56 |

## MODEMS

| | |
|---|---|
| Everex 2400 Baud Internal | $75 |
| Everex 2400 Baud Int. w/MNP5 | $150 |
| Everex 2400 Baud External | $175 |
| Everex 2400 Baud Ext. w/MNP5 | $195 |
| US ROBOTIC 14,400 Int. Fax Modem | $185 |
| US ROBOTIC 14,400 Ext. Fax Modem | $209 |
| US ROBOTIC 14,400 Int. Modem | $159 |
| US ROBOTIC 14,400 Ext. Modem | $185 |

## CD-ROM

Bundle Specials!

| **Panasonic 523 AT BUS** | **Sony CDU31A-02** |
|---|---|
| •Sound Blaster Pro<br>•Kings Quest<br>•Mother Goose<br>•Family Choice<br>•Dictionary of the Living World | •Sound Blaster Pro<br>•Battle Chess<br>•Mother Goose<br>•US Atlas & Automap<br>•Mavis Beacon Teaches Typing |
| **$420** | **$445** |

| | |
|---|---|
| Creative Lab Discovery CD16 | $460 |
| Creative Lab Discovery CD8 | $395 |
| Internal CD ROM Drive | $230/195 |
| Sound Blaster Card (8-Bit) | $79 |
| Sound Blaster Pro (16-Bit) Deluxe | $139 |

## INTEL MATH CO-PROCESSORS

| | |
|---|---|
| 387 SX-16 | $115 |
| 387DX-20 | $99 |
| 387 DX-25 | $99 |
| 387 DX-33 | $99 |

## MEMORY CHIPS

| | |
|---|---|
| **DRAM** | |
| 1MBx1-8 | $4.50 |
| 256K-8/10 | $1.25 |
| 256Kx4-8 | $4.50 |
| 64K-10 | $1 |
| **SIMM** | |
| 4MB x9-7 | CALL |
| 1MBx9-7/8 | CALL |
| 1MBx3-7/8 | CALL |
| **SIPP** | |
| 1MBx9-8 | CALL |
| 256Kx9-8 | CALL |

## MONITORS

| | |
|---|---|
| 14" Monochrome | $105 |
| SVGA Monitor 1024x768 .28dp | $270 |
| SVGA Monitor 1024x768 .39dp | $230 |
| Viewsonic 6 | $345 |
| Relisys 14" SVGA Non-Int. | $290 |
| Relisys 15" SVGA Non-Int. | $410 |
| 15" SVGA Monitor 1280x1024 NI | $430 |

## MOTHERBOARDS

| | |
|---|---|
| 386 SX 25MHz Motherboard | $110 |
| 386 DX 33MHz Motherboard | $180 |
| 386 DX 40MHz Motherboard | $195 |
| 486 DX2 66MHz Motherboard | $CALL |
| 486 DX 33MHz Local Bus MB | $CALL |
| 486 DX 33MHz Motherboard | $450 |
| 486 DX 50MHz Motherboard | $Call |

## PRINTERS

| | |
|---|---|
| Citizen 190GX (9 Pin) | $175 |
| Citizen GSX230 (24 Pin) | $249 |
| Citizen GSX240 (24 Pin) | $299 |
| Citizen Color Upgrade Kit | $49 |
| Panasonic 2180 (9 Pin) | $169 |
| Panasonic 2123 (24 Pin) | $239 |
| Panasonic 2124 (24 Pin) | $319 |
| Panasonic 4410 Laser | $555 |
| Toner KX-P450 | $37 |
| Toner KX-P453 | $35.95 |
| Toner KX-P451 | $39.95 |
| HP 51604A | $11.95 |
| HP 51608A | $19.95 |
| HP 92261A | $11.95 |
| HP 92275A | $63.95 |
| HP 92295A | $77.95 |
| HP 92298A | $109.95 |

## TAPE BACKUP

| | |
|---|---|
| Colorado 120MB/250MB | $159/190 |
| External Kit for Colorado Drive | $110 |
| Archive 250MB | $180 |

## MOUSES

| | |
|---|---|
| Logitech Trackball | $85 |
| Logitech Serial Mouseman | $55 |
| Microsoft Bus Mouse | $90 |
| Microsoft Serial Mouse | $79 |
| DEXXA Mouse w/Windows 3.1 | $69 |
| DEXXA Mouse | $27 |
| Mouse Systems A3 Mouse for Mac | $50 |
| Mouse Systems A3 Trackball for Mac | $50 |

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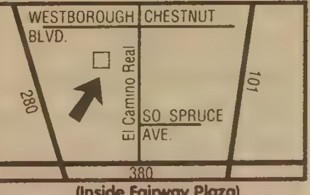

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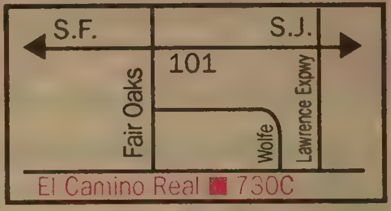

## SC486DX VLB SUPER SYSTEM

- INTEL 486DX-33 MHz CPU
- 256K CACHE
- US MADE VLB SUPER BOARD
- 4 MB RAM
- 1.2 MB OR 1.44 MB FLOPPY DRIVE
- 101 KEYBOARD AND I/O CARD
- 213 MB HARD DISK
- VLB VIDEO ACCELERATOR
- IDE CONTROLLER
- 14" SVGA MONITOR .28MM
- MINI TOWER CASE W/230W POWER SUPPLY

**$1288**

## SC386DX-33/40 ISA SYSTEM

- INTEL/AMD CPU
- 128K CACHE
- 4 MB RAM
- 130 MB HARD DISK
- IDE CONTROLLER
- 1.2 MB OR 1.44 MB FLOPPY DRIVE
- 101 KEYBOARD AND I/O CARD
- SVGA ADAPTER WITH 512K
- 14" SVGA MONITOR 0.28MM
- MINI-TOWER CASE W/230W POWER SUPPLY

**$888**

### MOTHERBOARDS

| | |
|---|---|
| 486 VLB 33/66 256KC w/o CPU | $130 |
| 486 ISA 33/50 128KC w/o CPU | 99 |
| 386 DX 33/40 128KC w/CPU | 119 |
| 486 SX 25 w/CPU 128KC | 189 |
| 386SX 33 w/CPU | 89 |

### HARD DRIVES

| | |
|---|---|
| 130 MB IDE | $175 |
| 213 MB IDE | 209 |
| 245 MB ID | 239 |
| 340 MB IDE | 339 |
| 520 MB IDE | 690 |
| 1.2 GB SCSI | 999 |

### MONITORS

| | |
|---|---|
| 12/14" Mono | $95 |
| 14" SVGA 0.28mm | 255 |
| 14" SVGA NI 0.28mm | 299 |
| 15" 1280 NI | 399 |
| 17" 1280 NI | 699 |
| 20" HITACHI 1280 NI | 1399 |

### VIDEO ADAPTERS

| | |
|---|---|
| SVGA w/512K | $38 |
| SVGA w/ 1 MB | 56 |
| Orchid F1280 VLB | 169 |
| Stealth 24 VLB | 169 |
| ATI Ultra Pro VLB | 349 |

### FLOPPY & TAPE BACK-UP

| | |
|---|---|
| 1.2 MB 5.25" | $49 |
| 1.44 MB 5.25" | 48 |
| Teac 1.2 & 1.44 MB | 149 |
| Colorado 120 MB TB | 145 |
| Colorado 250 MB TB | 199 |

### DISK CONTROLLERS

| | |
|---|---|
| IDE Controller | $15 |
| IDE + I/O | 22 |
| IDE VLB + I/O | 55 |
| Orchid IDE VLB | 75 |
| Adaptec 1542C Kit | 245 |
| Adaptec 1742C Kit | 419 |
| Ultrastor 34F VLB | 299 |

### KEYBOARDS

| | |
|---|---|
| Mitsumi 101 | $25 |
| Lite-On 101 | 26 |
| Keytronic 101 | 36 |
| MaxiSwitch 101 | 38 |
| Click 101 | 23 |
| Omni 101 | 75 |

### CASES

| | |
|---|---|
| Mini Tower w/230W | $55 |
| Mini Desktop w/200W | 57 |
| Mid Tower w/250W | 79 |
| Full Tower w/250W | 109 |
| Full Tower w/300W | 149 |

### MODEMS

| | |
|---|---|
| 2400 Internal/External | $36 |
| 24/96 Fax Internal | 55 |
| 14.4/14.4 Fax Internal | 179 |
| 14.4/14.4 Fax External | 220 |

All w/Software For DOS & WIN.

### NETWORKING

| | |
|---|---|
| NE 1000 Comp 8 Bit | $49 |
| NE 2000 Comp. 16 Bit | 59 |
| SMC Elite 16 Bit | 129 |
| 3COM | CALL |
| LANtastic AE-2 Starter | 490 |
| LANTastic AE-2 Adapter | 190 |

### CD-ROMS & SOUND

| | |
|---|---|
| Mitsumi Int w/Card (Photo CD Ready) | $179 |
| Sony CD-31 Int | 179 |
| Toshiba 3401B Int | 399 |
| Toshiba 3401B Ext | 499 |
| Spectrum 16 Sound Card | 159 |

### PRINTERS

| | |
|---|---|
| Panasonic 2123 | $229 |
| Panasonic 2180 | 169 |
| Panasonic 2624 | 339 |
| HP DeskJet 500C | 499 |
| HP 4L Laser Printer | CALL |
| OKI Laser 400 | CALL |

### MOUSE & DIGITIZERS

| | |
|---|---|
| Serial Mouse | $15 |
| Logitech 3 Button | 35 |
| Microsoft Serial | 49 |
| Microsoft Bus | 69 |
| Logitech Trackball | 79 |
| Summasketch III 12x12 | 329 |
| Calcomp | CALL |
| Kurta | CALL |

### SCANNERS & ETC.

| | |
|---|---|
| Complete PC GS Full Page | $325 |
| ScanPlus Color Page | 525 |

**CALL FOR OTHER PRODUCTS NOT LISTED**

### SOFTWARE

| | |
|---|---|
| DOS 6.0 | $45 |
| Windows 3.1 | 49 |
| MS-Word | 249 |
| MS-Excel | 249 |
| MS-Office | 449 |

### MEMORY CHIPS

| | |
|---|---|
| 1x9-70ns | $CALL |
| 4x9-70ns | CALL |
| 387SX-33 | CALL |
| 387DX-33 | CALL |
| 486DX-33 | CALL |
| 486DX-66 | CALL |

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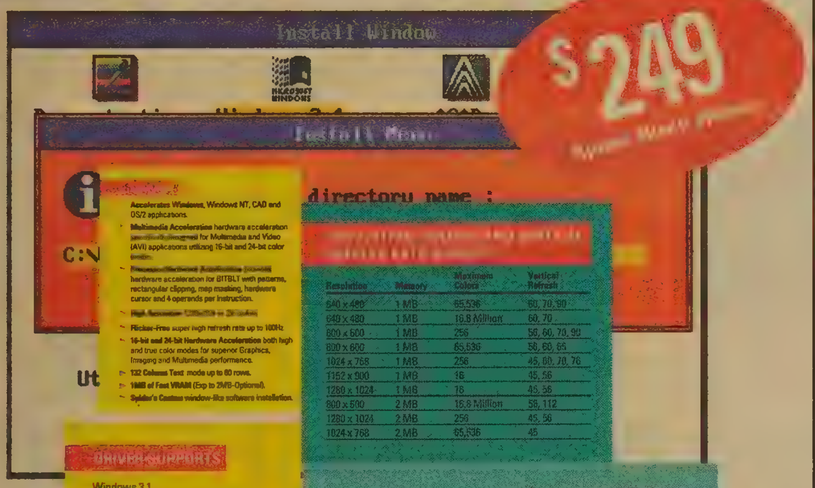
30% Faster than Orchid P9000
& Diamond Viper VLB
15% Faster Orchid Celsius &
Hercules Graphite VLB
(available Sept. 15)

## Spider Black Widow



$249

[illegible]

- **Accelerates Windows**, Windows NT, CAD and OS/2 applications.
- **Multimedia Acceleration** hardware acceleration [illegible] for Multimedia and Video (AVI) applications utilizing 16-bit and 24-bit color [illegible].
- [illegible] hardware acceleration for BITBLT with patterns, rectangular clipping, map masking, hardware cursor and 4 operands per instruction.
- **High Resolution** [illegible]
- **Flicker-Free** super high refresh rate up to 100Hz.
- **16-bit and 24-bit Hardware Acceleration** both high and true color modes for superior Graphics, Imaging and Multimedia performance.
- **132 Column Text** mode up to 60 rows.
- **1MB of Fast VRAM** (Exp to 2MB-Optional).
- **Spider's Custom** window-like software installation.

[illegible]

| Resolution | Memory | Maximum Colors | Vertical Refresh |
|---|---|---|---|
| 640 x 480 | 1 MB | 65,536 | 60, 70, 90 |
| 640 x 480 | 1 MB | 16.8 Million | 60, 70 |
| 800 x 600 | 1 MB | 256 | 56, 60, 70, 90 |
| 800 x 600 | 1 MB | 65,536 | 56, 60, 65 |
| 1024 x 768 | 1 MB | 256 | 45, 60, 70, 76 |
| 1152 x 900 | 1 MB | 16 | 45, 56 |
| 1280 x 1024 | 1 MB | 16 | 45, 56 |
| 800 x 600 | 2 MB | 16.8 Million | 56, 112 |
| 1280 x 1024 | 2 MB | 256 | 45, 56 |
| 1024 x 768 | 2 MB | 65,536 | 45 |

**DRIVER SUPPORTS**

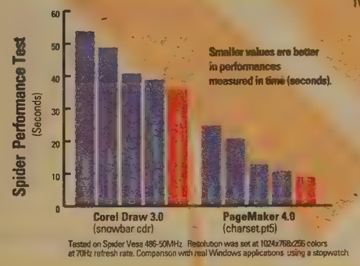
Windows 3.1
OS/2 Version 2.1
AutoCAD Release 11 & 12
AutoSHADE Release 2.0
VersaCAD Version 7
CADKEY Version 6.0
PCAD 5.1
Microstation 4.0, 3.1, or later
WordPerfect 5.1
Lotus 1-2-3 Release 2.X
Symphony Release 1.1
VESA VGA BIOS extension

Drivers are updated and added on a regular basis. Check the Spider Bulletin Board or contact Spider Technical Support for availability.

**Compared Prices**

| | |
|---|---|
| Orchid P9000 (Weitek P9000 Chip) | $599 |
| Diamond Viper (Weitek P9000 Chip) | $599 |
| Orchid Celsius (IIT X15) | $499 |
| Hercules Graphite PRO VLB (IIT X15) | $599 |
| Spider Black Widow (IIT X15) | $249 |

Spider Black Widow VGA base on X15 chip from IIT.
(IIT X15 selected editor choice on Windows Magazine, PC Magazine and InfoWorld)



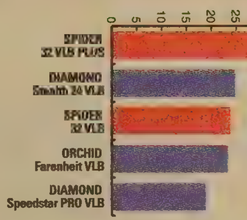
Tested on Spider Vesa 486-50MHz. Resolution was set at 1024x768x256 colors at 70Hz refresh rate. Comparison with real Windows applications using a stopwatch.

All VGA Graphics tested on Texas Instrument Inc. Wintach 1.2 at 1024 x 768 at 72Hz on Window 3.1

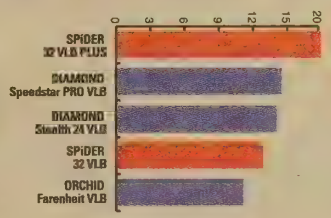
## Spider 32 VLB/Plus

| Performance Test | SPiDER 32 VLB PLUS | SPiDER 32VLB | ORCHID Farenheit VLB | DIAMOND Stealth 24 VLB | DIAMOND Speedstar PRO VLB |
|---|---|---|---|---|---|
| WINTACH 1.2 | 31.5 | 23.81 | 23.19 | 24.72 | 18.77 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

(Test on 486-50DX with Windows 3.1 in resolution 1024x768x256 Colors, 1MB RAM on following motherboards chipset SIS, CONTAQ, OPTI, UMC, USA CHIP SET)



All VGA Graphics tested on Texas Instrument Inc. Wintach 1.2 at 1024 x 768 at 72Hz on Window 3.1



PC Magazine ZD Labs' WinBench V3.11 test results were performed by Spider Graphics Inc. Independently of any testing performed by Ziff-Davis Publishing.

**Driver Supports:**

Windows 3.0, 3.1
AutoCad R.9, 10, 11, 12
GEM Ver 2.2
Lotus 1-2-3 R.2.0, 2.1, 2.2
Symphony R1.1
Ventura Publisher Ver 1.1, 2.0
WordPerfect 5.0, 5.1
Wordstar 4.0
Autodesk 3D Studio
OS/2 PM Ver 2.0
AutoDesk-Shade Ver 2.0
PCAD
MS-Word

**Specifications:**

Bus Compatibility
Supports VESA LOCAL BUS (VL-BUS)

| Resolution | 1 MB | 2 MB |
|---|---|---|
| 640 x 480 | 16.7 M Colors | 16.7 M Colors |
| 800 x 600 | 64K Colors | 64K Colors |
| 1024 x 768 | 256 Colors | 64K Colors |
| 1280 x 1024 | 16 Colors | 256 Colors |

Highest resolution of 1280 x 1024 in 256 colors (with 2MB of RAM)

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**New Windows Driver + OS/2 2.1 on BBS. (15% Faster)**

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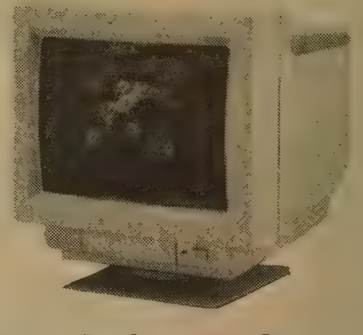
**PIONEX Introduces A New Modular Designed Technology in Their Monitors With Larger Image Area Than Other 14" Monitors.**



- 14" Monitor
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- 1024 x 768 Resolution
- .28mm Dot Pitch

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## Our VESA Local Bus increases performance not the price!

Enjoy the extraordinary increased performance of VESA Local Bus without paying hundreds more.

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# MULTI-MEDIA SYSTEM
# 486-33 MHz SYSTEM $CALL

## INCLUDES:

INCLUDES:
CD-ROM,
SOUND CARD,
AND 4 CD's

- √ INTEL 33 MHZ 80486 MICRO-PROCESSOR
- √ 4 MB RAM EXP. TO 32 MB ON THE BOARD
- √ 1.2 MB OR 1.44 MB FLOPPY DRIVE
- √ 200 MB IDE HARD DRIVE
- √ SONY CD-ROM W/375ms ACCESS TIME
- √ SOUND CARD W/SOFTWARE
- √ SET OF EXTERNAL SPEAKERS
- √ 4 CD'S INCLUDING: COMPTON'S MULTI-MEDIA ENCYCLOPEDIA, BRITANNICA'S FAMILY CHOICE, BRITANNICA'S HOME OFFICE SELECT AND SOFTWARE JUKE BOX
- √ 14" SVGA COLOR MONITOR .28mm
- √ SVGA 1MB ADAPTER
- √ SIX 16-BIT SLOTS AND ONE 8-BIT EXPANSION SLOT
- √ 101-KEY KEYBOARD
- √ MS DOS 6.0
- √ WINDOWS 3.1 WITH MICROSOFT COMPATIBLE MOUSE
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## SYSTEMS CORNER

All systems include:

- Motherboard and CPU
- 4MB RAM
- Cache as shown
- AMI BIOS
- 130MB hard disk
- Teac 1.44 or 1.2MB floppy drive
- 14" SVGA monitor 0.28
- SVGA card with 512K
- IDE controller 2HD/2FD
- AT I/O controller 2S/1P/1G
- Mini tower with 200W PS
- Mitsumi keyboard and mouse

| | |
|---|---|
| →PentiumVLB w/256K | *CALL!* |
| →EISA/VLB 486DX2-66 256K | $1595/1675 |
| →EISA/VLB 486DX-50 256K | $1525/1575 |
| →EISA/VLB 486DX2-50 256K | $1435/1535 |
| →EISA/VLB 486DX-33 256K | $1365/1435 |
| →ISA/VLB 486DX2-66 256K | $1455 |
| →ISA/VLB 486DX-50 256K | $1375 |
| →ISA VLB 486DX2-50 256K | $1335 |
| →ISA VLB 486DX-33 256K | $1245 |
| →ISA 486DX2-66 128K | $1445 |
| →ISA 486DX-50 128K | $1365 |
| →ISA 486DX2-50 128K | $1305 |
| →ISA 486DX-33 128K | $1215 |
| →ISA 486SX-25 64K | $1015 |
| →ISA 386DX-33/40 64K | $885 |

## Windows NT

- 486DX2-66 Intel CPU & Motherboard
- 8MB RAM w/256K Cache
- 345MB Hard Disk Drive
- 1.2 and 1.44MB Floppy Drives
- Vesa Local Bus SCSI Controller
- SVGA Card with 1MB RAM
- 14" SVGA NI 0.28 Monitor
- 101 - Enhanced Keyboard
- Full Tower Case w/300 Watts
- Windows NT 3.1
- Windows 3.1/DOS 6.0 & Serial Mouse

**$2749**

## Orchid VLB

- Orchid 486DX-33 Board w/256K
- Intel 486DX2-66 upgradable
- 4MB RAM-70ns - to 32MB on board
- Teac 1.2 and 1.44MB Floppy Drives
- Maxtor 245MB Hard Drive
- Orchid VLB IDE Controller-2FD/2HD
- Wiseland I/O Controller (2S/1P/1G)
- Orchid Fahrenheit Adapter VLB-1MB
- MAG 15" 1280x1024 SVGA Digital MON
- MiniTower Case with 230W Power Supply
- Mitsumi 101 Enhanced Keyboard
- Serial Mouse

**$1875**

## Drives

### IDE:

| | | | |
|---|---|---|---|
| Seagate | 40MB | 19ms | $104 |
| Conner | 80MB | 9ms | $150 |
| Quantum | 85MB | 19ms | $165 |
| Conner | 120MB | 19ms | $167 |
| Seagate | 130MB | 15ms | $175 |
| Conner | 170MB | 17ms | $182 |
| Maxtor | 213MB | 15ms | $220 |
| Maxtor | 245MB | 15ms | $235 |
| Conner | 250MB | 12ms | $270 |
| Maxtor | 345MB | 14ms | $310 |
| W Digital | 345MB | 15ms | $290 |
| Fujitsu | 425MB | 12ms | $445 |
| Quantum | 525MB | 10ms | $615 |
| Conner | 540MB | 10ms | $620 |
| Maxtor | 540MB | 9ms | $799 |

### SCSI - 3.5"

| | | | |
|---|---|---|---|
| Quantum | 240MB | 12ms | $199 |
| Maxtor | 340MB | 15ms | $299 |
| Conner | 525MB | 10ms | $649 |
| Conner | 540MB | 13ms | $599 |
| Quantum | 1.0GB | 10ms | $849 |
| Quantum | 1.2GB | 10ms | $1049 |
| Fujitsu | 2.0GB | 12ms | $1749 |

### SCSI - 5.25":

| | | | |
|---|---|---|---|
| Fujitsu | 1.2GB | 13ms | $999 |
| Maxtor | 1.2GB | 13ms | $1049 |
| Maxtor | 1.7GB | 13ms | $1400 |

## Tape Backup

| | |
|---|---|
| Colorado 120/250MB QIC-40 | $155/185 |
| Colorado KE-10 ext. card w/kit | $105 |
| Colorado ext. port card | $40 |
| FC-10 high performance card | $90 |
| Colorado Trakker 120/250MB | $312/369 |
| Conner 250MB (INT) | $165 |
| Summit Express 120MB QIC-40 (INTERNAL) | $161 |
| Summit Express 250MB QIC-40 (INTERNAL) | $219 |
| Summit Express 305MB (INT) | $299 |
| Archive Viper 215MB HH SCSI-INT | $382 |
| Archive Viper 215MB HH SCSI-EXT | $485 |
| Archive Viper 525MB SCSI (INT) | $499 |
| Archive Viper 525MB SCSI (EXT) | $599 |
| Colorado Jumbo Trakker Parallel Port 120MB/250MB | 380 |
| Anaconda 1.35GB 5.35" hh SCSI-2 | $849 |
| Colorado PowerTape 2.4GB w/SCSI controller 5.25" (INTERNAL) | $1065 |
| Colorado PowerTape 4.0GB w/SCSI controller 5.25" (INTERNAL) | $1535 |
| Exabyte 2.0GB 3.5" 4mm SCSI (INT) | $979 |
| Exabyte 4.0GB 4mm SCSI (INT) | $1045 |
| Exabyte 2.5GB 8mm SCSI, single-ended (INTERNAL/EXTERNAL) | $1463/1716 |
| Exabyte 5.0GB (full height) 8mm 5.25" SCSI single-ended (INT/EXT) | $2199/2429 |
| Exabyte 5.0GB (half height) 8mm 5.25" | |

## Removable Drives

| | |
|---|---|
| Syquest 88MB DR 44/88 dual | $470 |
| Syquest 110MB 3.5" media | $85 |
| Syquest 110MB 3.5" IDE/SCSI | $480/570 |
| Bernoulli 44/99 Insider | $835/905 |

STORAGE MEDIA AVAILABLE (including bulk floppies, cartridges, magneto-optical cartridges) - CALL!

## Motherboards

ISA/VLB - 256K WITH CPU:

| | |
|---|---|
| 486DX-33 | $382/392 |
| 486DX2-50 | $450/467 |
| 486DX-50 | $528/538 |
| 486DX2-66 | $585/599 |

- *EISA prices? CALL!*
- *64/128K AVAILABLE*
- *Different slots/configurations AVAILABLE*
- *Brand names - ORCHID, NICE, AMI, AIR - ALL AVAILABLE. PLEASE CALL!*

## Monitors

| | |
|---|---|
| Mono - Amber/White | $109 |
| Mono - VGA | $139 |
| 14" .51 VGA | $179 |
| Infiniti 14" SVGA (1024x768) 0.28 | $296 |
| Infiniti 14" SVGA (1024x768) 0.28 NI | $320 |
| Viewsonic 6E SVGA 1024x768 NI | $315 |
| Sampo AlphaScan 1024x768 NI | $355 |
| Infiniti 14" (1024x768) 0.39 | $212 |
| Infiniti 15" (1280x1024) 0.28 NI | $369 |
| Addonics 15" 1024x768 70Hz | $420 |
| CTX 15" SVGA (1024x768) 0.28 | $475 |
| Optiquest SVGA 15"(1024x768) 0.25 | $499 |
| Viewsonic SVGA 15" (1280x1024) 0.28 NI | $575 |
| CTX SVGA 17"(1024x768)0.28 | $875 |
| Sony MS SVGA 17" (1280x1024) 0.25 | $1050 |
| Viewsonic Digital (1600X1280) .28 NI | $1817 |
| Sony MS (1600x1280) 0.25 | $2299 |

## Communications

→FAX/MODEMS:
Adtech, Hayes, Intel, Nuvotel, MultiTech, Supra, Zoltrix...

→NETWORKING EQUIPMENT:
BusLogic, Intel, Multitech, SMC

*LARGE SELECTION - CALL FOR LOW PRICES!*

## Adapters

| | |
|---|---|
| ATI stereo F/X-CD | $149 |
| ATI Graphics Vantage 1MB | $185 |
| ATI Ultra+2MB | $349 |
| ATI Ultra 1.0MB | $231 |
| ATI UltraPro2M | $483 |
| ATI Ultra Pro 2 MB VLB | $549 |
| Diamond SpeedSTAR24X/1MB-ISA | $160 |
| Diamond Stealth 24 1MB-ISA | $162 |
| Diamond Stealth 24 1MB-VLB | $165 |
| Dia. Stealth Pro 1MB-ISA/VLB | $245/255 |
| Diamond Viper VLB 2MB | $425 |
| Diamond FastBus VLB | $550 |
| DFI Monochrome w/parallel port | $35 |
| DFI Color w/parallel port | $45 |
| Genoa ET4000 VGA, 24-bit w/1MB | $127 |
| Genoa VLB32-bit accelerator/1MB | $138 |
| Genoa Windows VGA 24-bit | |

*PROMISE, ORCHID, STANDARD TECHNOLOGIES, TRIDENT VIDEO CARDS ALSO AVAILABLE. CALL FOR PRICES!*

## Controllers

| | |
|---|---|
| IDE 2H/2F | $15 |
| IDE4FD/2HDD | $32 |
| UMC IDE 2H/2F 2S/1P/1G | $16 |
| Wiseland SERIAL CARD 1 port | $12 |
| Wiseland SERIAL CARD 2 ports | $15 |
| Wiseland AT I/O 2S/1P/1G | $12 |
| Wiseland AT I/O 2S,2P | $18 |
| Wiseland AT I/O HiSpeed | $30 |
| 4 Floppy Controller | $30 |
| Promise local bus | $46 |
| BT-4455 SCSI II VLB | $289 |
| BT-542B ISA SCSI w/Kit | $239 |
| BT-742A EISA SCSI w/kit | $299 |
| Adaptec 1522 16 Bit SCSI | $84 |
| Adaptec 1522K SCSI | $168 |
| Adaptec 1542 B/16 Bit SCSI | $188 |
| Adaptec 1542CK SCSI w/software | $249 |
| Adaptec 1742BK EISA 32 Bit w/kit | $399 |
| DPT ISA Storage Manager Kit | $212 |
| DPT Caching Module | $376 |

## Cases

| | |
|---|---|
| Desktop + 230W PS | $54 |
| Mini Tower + 200W PS | $48 |
| Mini Tower + 230W PS | $51 |
| Medium Tower + LED + 230 PS | $69 |
| Full Tower + LED + AT 250W PS | $95 |
| 250W UL/PS2 power supply | $37 |
| 250W UL/AT power supply | $39 |

## Notebooks

**Monochrome**(9.5" LCD, 64 gray scale, 5.5lbs. w/battery):

| | |
|---|---|
| 486DX-33 | $1725 |
| 486DX2-50 | $1779 |
| 486DX-50 | $1875 |
| 486DX2-66 | $1935 |

**Active color** (9.5" LCD, 6.2lbs w/battery):

| | |
|---|---|
| 486DX-33 | $3175 |
| 486DX2-50 | $3235 |
| 486DX-50 | $3395 |

**Accessories:**

| | |
|---|---|
| 200MB/345MB HDD | $395/599 |
| Extra battery pack | $87 |
| Internal fax modem | $127 |
| Docking Station | $375 |

ALL NOTEBOOKS INCLUDE:

- 4MB expandable to 20MB.
- Int. DC battery pack w/ext AC/DC adapter.
- MS DOS & Windows 3.1
- Carrying case

## Other Items

- *Keyboards:*
B.T.C.,Chicony,MaxiSwitch, Membrane, Mitsumi, Sejin.

- *Mice:*
Serial (different colors), 3 button, Logitech Trackman.

- *CD ROM drives/software:*
Hitachi, Mitsumi, NEC, TEAC, Toshiba,Texel.100+CD-Software TITLES/BUNDLES AVAILABLE.

- *Printers:*
Citizen, Lexmark,QMS,QUME,Konica, NEC, Star.

*ALL ITEMS AVAILABLE - PLEASE CALL FOR COMPETITIVE PRICES!*

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- Prompt and friendly reply to queries
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- International shipping available

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- 1 year warranty on components
- Lifetime support by phone
- 1 year warranty on monitors and mouse
- Warrant beyond 3 years:
4th year: 5% of system cost
5th year: 10% of system cost

## Terms

- All prices subject to change without notice
- Availability subject to change w/o notice
- Credit terms are subject to approval
- Freight charges on returned items are not refundable
- Not responsible for typographical errors
- 10% restocking fee on returned items
- Free delivery on systems more than $2000
- $15 delivery charge for express delivery

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Sat 10 a.m. - 4 p.m.

| | | | | |
|---|---|---|---|---|
| VESA 2 LOCAL BUS | 486-66DX2 | 128K CACHE SYSTEM | $788 | Motherboard Only $608 |
| VESA 2 LOCAL BUS | 486-50DX | 128K CACHE SYSTEM | $728 | Motherboard Only $548 |
| VESA 2 LOCAL BUS | 486-50DX2 | 128K CACHE SYSTEM | $648 | Motherboard Only $458 |
| VESA 2 LOCAL BUS | 486-33 | 128K CACHE SYSTEM | $578 | Motherboard Only $388 |
| 3 EISA 2 LOCAL BUS | 486-66DX2 | 256K CACHE SYSTEM | $938 | Motherboard Only $758 |
| 3 EISA 2 LOCAL BUS | 486-50DX2 | 256K CACHE SYSTEM | $788 | Motherboard Only $608 |
| 3 EISA 2 LOCAL BUS | 486-33 | 256K CACHE SYSTEM | $718 | Motherboard Only $538 |
| | 486-66DX2 | 128K CACHE SYSTEM | $778 | Motherboard Only $588 |
| | 486-50DX | 128K CACHE SYSTEM | $718 | Motherboard Only $538 |
| | 486-50DX2 | 128K CACHE SYSTEM | $628 | Motherboard Only $438 |
| | 486-40 | 128K CACHE SYSTEM | $558 | Motherboard Only $368 |
| | 486-33 | 128K CACHE SYSTEM | $558 | Motherboard Only $368 |
| | 486-50SLC | 64K CACHE SYSTEM | $508 | Genuine IBM Motherboard $318 |
| | 486-25SX | 128K CACHE SYSTEM | $368 | Motherboard Only $178 |
| | 386-40 | 128K CACHE SYSTEM | $308 | Motherboard Only $120 |
| | 386-33SX | SYSTEM | $268 | Motherboard Only $78 |

## BASIC SYSTEM CONFIGURATION:

- 1MB RAM Expandable
- IDE 2FD/2HD Controller
- 101 Key Mitsumi Keyboard
- Teac 1.2 or 1.44 MB Floppy Drive
- 2 Serial, 1 Parallel, 1 Game Ports
- Mini-Desk Top or Tower Case
- Power Supply
- One Year Warranty

**LIFETIME LABOR WARRANTY ON SYSTEM!**

## SPECIAL $9.50 CD-TITLES

- Dr Games DOS
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- Windowsware
- Dr. Music DOS
- Dr. Windows
- ClipArt Goliath
- DeathStar Arcade Battles
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- Our Solar System
- Sound Sensations
- Too Many Typefonts
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## "TWIN SOUND" SPEAKER $60

- Installs into 5.25" Drive Bay
- No Wires, No Batteries, No Adapters, No Mess!
- Frequency Modulated Flashing LEDs

### VIDEO CARDS

| | |
|---|---|
| ATI Ultra Pro VLB 2MB | $355 |
| ATI Ultra Pro 2MB ISA | 355 |
| ATI Ultra Graphics Plus 2MB | 269 |
| Diamond Stealth 24 | $150 |
| Diamond Stealth 24 VLB (S3 Chip) | 150 |
| Diamond Stealth Pro (VRAM) 1/2 MB | 239/349 |
| Diamond Viper 2MB VRAM | 375 |
| Diamond Speedstar 1MB VLB | 118 |
| ORCHID FAHRENHEIT DRAM | $150 |
| ORCHID FAHRENHEIT VESA LOCAL BUS | 150 |
| GENOA VESA LOCAL BUS | $108 |
| ET 4000 1024x768 NON-INT. | 79 |
| TRIDENT VGA (1024x768) 1MB | 56 |
| Accumos VGA 800x600/256K | 28 |
| Accumos 1024x768/512K | 39 |
| GENERIC Monochrome Graphics w/Printer Port | 17 |

### DRIVE CONTROLLERS

| | |
|---|---|
| AIR VESA IDE/SCSI w/2S, 1P | $189 |
| DTC 3280 SCSI | 95 |
| DTC 2290 EISA IDE FD/HD | 135 |
| IDE Controller w/2S/1P/1G | 19 |
| IDE 4F/2H | 29 |
| IDE I/O VLB (True 32 Bit) 2S/1P | 38 |
| Adaptec SCSI 1542C w/ software | 195/248 |
| Adaptec SCSI 2742T EISA w/Floppy & Software (14 SCSI Devices Support) | 399 |
| Ultrastor VLB SCSI II 32K Cache | 275 |

### I/O CARDS

| | |
|---|---|
| AT I/O (2S 16550/1P/1G) Hi-Speed | $42 |
| RS-232 card | 17 |
| AT-I/O (2S/1P/1G) | 15 |
| Printer Card | 12 |
| Game Card | 12 |

### MONITORS

| | |
|---|---|
| NANAO F340iw 15" .28 | $695 |
| F550i 17" | 1075 |
| F550iw | 1125 |
| T560i 17" | 1695 |
| T660i 20" | 2595 |
| F750i 20" | 2095 |
| KFC 17" Flat Screen .26 Digital Cont | 835 |
| VIEWSONIC | |
| 17" 1280x124 .28NI | 1095 |
| 20" 1600x1280 .28NI | 1785 |
| V6E Non-Int 14" | 315 |
| V5E | 395 |
| 15" 1280x1024 NI | 495 |
| V4E 1024x768 VGA 14" | 289 |
| EYEQ 1024x768 VGA .28 | 255 |
| EYEQ SVGA 1024x768 .39 | 215 |
| EYEQ NI 1024x768 .28 | 275 |
| STANDARD TECHNOLOGIES 1024x768 .28 Full Screen | 268 |
| VGA Mono | 109 |
| NEC 4FGE | 699 |
| 3FGE | 599 |
| 14" Flat Screen Mono (Amber or Paper White) | 95 |
| SONY 1430S Non-Int (1024x768) 14" | 599 |
| 1604S 16" | 965 |
| 1730 17" | 995 |
| 2038 20" | 2295 |
| MAG MX 15F .28 1280x1024 NI | 535 |
| MAG MX 17F .26 1280x1024 NI | 975 |

### KEYBOARDS

| | |
|---|---|
| Keytronic 101 | $37 |
| Mitsumi 101 | 30 |
| Chicony 5161 101 Keyboard (clicking) | 39 |
| MAXISWITCH 101 Keyboard | 35 |
| Omni 102/Ultra | 69/95 |
| Black 101 Keyboard | 39 |

### MODEMS & FAX MODEMS

| | |
|---|---|
| ZOLTRIX 2400 Internal Modem | $35 |
| 24/96 Fax Modem (Send/Receive) | 49 |
| 14400 Fax Modem V.42 Int/Ext | 135/179 |

### DISK DRIVES

All HD Come With Mounting Bracket

| | |
|---|---|
| TEAC 1.2 MB | $51 |
| 3.5" (1.44 MB) | 46 |
| 1.2, 1.44 MB Combo Drive | 119 |
| MAXTOR | |
| 7131A 130 MB 15 ms | 185 |
| 7213A 213 MB | 209 |
| 7245A 240 MB | 239 |
| 7345A (new) 340 MB | 305 |
| MXT540S 8.5ms | 759 |
| 7345S SCSI | 349 |
| MXT540A 540 MB | 759 |
| 3.5" 1.2 Gigabytes 8.5ms | 1195 |
| 1.7 Gigabyte 13ms | 1125 |
| CONNER | |
| 170 MB 17ms | 185 |
| 250 MB 14ms | 219 |
| 540 MB | 519 |
| QUANTUM | |
| LPS 240AT IDE | 235 |
| LPS 240AT SCSI | 265 |

### NETWORK CARDS

| | |
|---|---|
| Ethernet 8 Bit | $65 |
| Ethernet 16 Bit | 79 |
| Arcnet STar/Bus 8 Bit | 49 |
| 10 BT Ethernet 16/8-Bit | 71/65 |

### TAPE BACK-UP

| | |
|---|---|
| COLORADO Tape Back-Up 120 MB | $147 |
| Tape Back-Up 250 MB | 169 |
| DC-2120 Tape Cartridge For Above | 18$^{50}$ |
| DC-2120 Tape Cartridge Formatted | 22 |
| COLORADO Drive External Kit | 109 |
| COLORADO Trakker 250 MB | CALL |
| CONNER 250 MB Tape Back-Up | 139 |

### HIGH QUALITY MAIN BOARDS

| | |
|---|---|
| ASUS 486-66 MHz w/ CPU w/128/256K Cache | $635/665 |
| ASUS 486-50MHz w/CPU w/ 256K | 605 |
| ASUS 486-50MHz DX2 128K Cache | 485 |
| ASUS 486-33 MHz w/CPU w/128K Cache | 415 |
| 486-50 MHzSX VLB w/IBM CPU | 338 |
| 486-50 SLC (IBM) | 318 |
| 486-25SX w/ CPU w/Cache | 178 |
| 386-40 (128K Cache) w/CPU | 120 |
| 386-33SX | 78 |

### COMPUTER CASE

| | |
|---|---|
| 14" Baby AT Case W/ 200W P/S | $69 |
| 17" Baby AT Case W/200W P/S | 89 |
| Vertical Case 250W P/S | 119 |
| Medium Vertcal Case 250W P/S | 95 |
| Mini Vertical Case 200W P/S | 69 |
| Sleek Black Case | CALL |

### LOGITECH PRODUCTS

| | |
|---|---|
| Logitech Trackman Combo | $75 |
| Logitech Trackman Portable | 95 |
| Logitech Bus Mouseman | 64 |
| Logitech Mouseman Combo | 64 |
| First Mouse | 37 |
| Mouse (Serial 9 Pin) | 9 |
| Microsoft Mouse Bus/Ser (400dpi) | 85/75 |
| Microsoft Mouse Ser (OEM) | 45 |
| Trackball | 24 |

### PRINTERS

| | |
|---|---|
| Panasonic KXP-1624 132 Column | $349 |
| KXP-2023 | 219 |
| KXP-1124i | 259 |

### MISC.

| | |
|---|---|
| MS DOS 6 (w/ System only) | $48 |
| 6/10/15/25' printer cable | 3$^{50}$/6/10/20 |
| Keyboard Extention cable | 5 |
| Monitor Extension cable | 5 |
| Keyboard Drawer/Under Table | 27/18 |
| Computer floor stand | 7$^{95}$ |
| Power Center | 18 |
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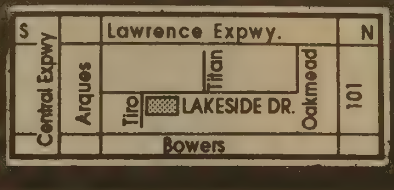

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| WHERE IN THE WORLD IS CARMEN SAN DIEGO | 20 |
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| STELLAR 7 DOS | 15 |
| MONKEY ISLAND | 17 |
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| DESERT STORM MPC | 18 |
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| ARTHUR TEACHER TROUBLE | 22 |
| MARIO IS MISSING/WORLD ATLAS 3.2 | 19 |
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| LIBRARY OF THE FUTURE 1ST | 38 |
| NAT'L GEOGRAPHIC MAMMALS | 21 |
| WORLD VIEW | 12 |
| OCEAN DIGITAL IMAGERY VI | 20 |
| ELEC LIBRARY OF ART VI | 27 |
| ELEC LIBRARY OF ART V2 | 27 |
| GREAT CITIES VOL I | 18 |
| GREAT CITIES VOL 2 | 18 |
| TIME TABLE OF HISTORY | 15 |
| TOOLWORKS ENCYCLOPEDIA | 42 |
| WILD PLACES | 12 |
| MACMILLON DICT. CHILDREN | 19 |
| PRESIDENTS | 78 |
| TIME TABLE OF HISTORY (BUSINESS & POLITICS) | 19 |
| USA WARS: CIVIL WAR | 26 |
| USA WARS: KOREA | 26 |
| USA WARS: WW II | 26 |
| USA WARS: VIET NAM DOS | 26 |
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| PLAYING WITH LANGUAGE: JAPANESE | 22 |
| PLAYING WITH LANGUAGE: SPANISH | 22 |
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| BARRONS COLLEGE GUIDE | 18 |
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| •MICROSOFT WORK MPC | 43 |
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- 170 MB HARD DRIVE
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- 1.2 OR 1.44 MB FLOPPY DRIVE
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| AUTHORWARE STAR FOR WINDOWS | 39 |
| MACROMEDIA ACTION FOR WINDOWS | 26 |
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| BUSINESS BACKGROUND | 19 |
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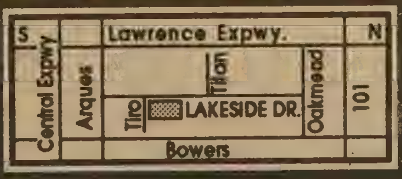

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- 4 MB RAM-70ns
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- Mini/Desktop Case w/230W Power Supply

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- 128K Cache
- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 120 MB IDE Hard Drive
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- 512K SVGA Card
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- Mini/Desktop Case w/230W Power Supply

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|---|---|
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| 486DX-50 Intel | $1639 |
| 486DX2-66 Intel | $1675 |

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- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- 213 MB IDE Hard Drive
- IDE I/O 2FD/2HD, 2S/1P/1G Ports
- VESA Local Bus Cirrus Logic Video Card w/1 MB
- 14" SVGA Monitor .28dp
- Maxi Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

| | |
|---|---|
| 486DX-33 Intel | $1669 |
| 486DX-50 Intel | $1820 |
| 486DX2-66 Intel | $1920 |

- ORCHID Motherboard w/256K Cache, 2 VESA Slots
- AMI BIOS
- 4 MB RAM-70ns
- 1.2 MB Teac Floppy Drive
- 1.44 MB Teac Floppy Drive
- Maxtor 213 MB IDE Hard Drive
- VESA Local Bus IDE, Orchid I/O Card
- VESA Local Bus Fahrenheit Video Card w/1 MB-Orchid/Diamond
- 14" SVGA Monitor .28dp
- Maxi Keyboard 101 Key
- Mini/Desktop Case w/230W Power Supply

## MOTHERBOARDS

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|---|---|
| 486-50 (EISA) 33/50 MHz | CALL |
| **ISA** | |
| 486-50 Local Bus w/256K Cache w/CPU | $980 |
| 486DX-33/50/66, 128K Cache w/o CPU | 105 |
| 486DX-33/50/66, 256K Cache w/o CPU | 150 |
| 386DX-33/486DX AMD Upgradable w/CPU | 195 |
| 386DX-40, 128K Cache w/o CPU | 98 |
| w/CPU | 190 |
| ALL-IN-ONE | |
| 386SX-33 512K SVGA, IDE I/O | $165 |
| 486SX-33 0K, 512K SVGA, IDE I/O w/CPU | 170 |
| 386SX-33 w/CPU | 120 |
| 386SX-25 w/CPU | 99 |
| 386SX-16 w/CPU | 59 |
| **VESA LOCAL BUS** | |
| ORCHID Motherboard, 256K Cache w/o CPU | $205 |
| ECS Motherboard, 128K Cache w/o CPU | 145 |

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|---|---|
| VESA Video Cards | |
| Orchid Fahrenheit, 1 MB, S3 | $170 |
| Diamond Stealth, 1 MB, S3 | 165 |
| Diamond Speedstar 1 MB | 135 |
| ATI Ultra Pro Graphics Pro 2 MB | 365 |
| Cirrus Logic, 1 MB | 105 |
| Orchid Viper | 340 |
| ISA Video Cards | |
| Orchid Fahrenheit, S3 | $180 |
| Diamond Star 24X | 170 |
| Trident 1 MB | 54 |
| Tseng Lab 1 MB | 85 |
| Trident 512K | 40 |
| Accumos 256K | 29 |

## MONITORS

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|---|---|
| 14" SVGA 0.28 | $240 |
| 14" SVGA VESA 0.28 NI | 280 |
| Non-Int SVGA 0.28 | 250 |
| Sony 1304 | 579 |
| ViewSonic 4/6/5E/7 | 295/399/395/1099 |
| NEC 3FG/4FG/5FG | 659/749/1359 |
| Samsung 14" VGA (.31) | 260 |
| Samsung 14" SVGA (.28) | 240 |
| Samsung 15" SVGA (.28) | 475 |
| Samsung 17" SVGA (.31) | 789 |
| OTHERS | CALL |

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| | 130 MB IDE | 170 |
| | 170 MB IDE | 195 |
| | 210 MB IDE | 230 |
| | 340 MB IDE | 340 |
| | 520 MB IDE | 789 |
| **MAXTOR** | 80 MB IDE | 165 |
| | 130 MB IDE | 175 |
| | 213 MB IDE | 240 |
| | 340 MB IDE | 345 |
| | 340 MB SCSI | 545 |
| | 660 MB | CALL |
| **QUANTUM** | 52 MB IDE | 165 |
| | 120 MB IDE | 210 |
| | 240 MB IDE | 265 |
| **SEAGATE** | 105 MB IDE | 205 |
| | 130 MB IDE | 215 |
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| **FUJITSU** | 540 MB IDE | CALL |

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| 1.2 MB Samsung 5.25" | 49 |
| 1.44 Samsung 3.5" | 45 |

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| Maxiswitch 101 | 32 |
| Chicony 101 | 28 |
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| Mitsumi 101 Key | 30 |

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| MS DOS 5.0 | 40 |
| Windows 3.1 | 45 |
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| Power Supply 150/220W | 39/49 |
| Monitor/Keyboard Ext Cable 10' | 7 |
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| Sound Blaster Pro | 189 |
| Sound Blaster | 105 |
| CPU Fan | 14 |

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| Logitech Scanman Model 32 | 149 |
| Logitech Model 256 w/OCR | 365 |
| Microsoft Mouse | 89 |
| Logitech w/Windows 3.1 | 75 |
| Serial Mouse w/Pad | 14 |

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|---|---|
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| Bustek EISA SCSI | 345 |
| Apatec 1542 SCSI | 255 |
| DTC IDE I/O | 90 |
| Winbound IDE I/O | 57 |
| IDE w/Cache | 195 |
| IDE 4FD/2HD | 32 |
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Memory Up To 32 MB
For PS/2-70,80,90
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| 9624 bps FAX/MODEM (INT) | 55 |
| 9600 bps MODEM (INT) | 239 |
| 9624 bps FAX MODEM | 139 |
| 9624 bps POCKET MODEM | 139 |
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| 1x9-70 3 Chip | 45 |
| 1x9-80 3 Chip | 44 |
| 1x9-80/70/60 9 chip | CALL |
| 1x9-80/70 3 chip | CALL |
| 4x8-60 | 149 |
| 4x9-70 | 148 |
| 4x9-80 | 139 |
| 16x9-70 | CALL |

### MAC TYPE

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|---|---|
| 1x8-100 8 Chip | $35 |
| 1x8-80 2 Chip | 39 |
| 1x8-70 2 Chip | 41 |
| 1x8-80/70 8 Chip | 47 |
| 2x8-80/70 | 80 |
| 4x8-80/70 | 130/135 |
| 16x8-80/70 | CALL |
| Mac IIfx 4/16 MB Kit | CALL |
| 256K VRAM | CALL |
| 512K VRAM | CALL |
| 16/32/64/128MB Kits for Quadra 700/900 & Mac IIfx, ci | CALL |
| NEW 72 PIN SIMM for MAC LCII & CENTRIS | CALL |

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|---|---|
| 256Kx36-80/70 | $38/49 |
| 512Kx36-80 | 69 |
| 512Kx36-70 | 79 |
| 1x36-70 | 170 |
| 1x36-60 | 189 |
| 2x36-80/70/60 | 340/375/399 |
| 4x36-80/70 | 640 |
| 8x36-70 NEW | 1700 |

32 BIT SIMMS ALSO AVAILABLE

## DRAMS

### DRAMS

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| 256x1-80 | $1.80 |
| 256x1-100 | 1.50 |
| 256x1-120 | 1.50 |
| 256x4-70/80 | 5.49 |
| 64x4-80/100 | 2.00 |
| 1x4-80 DIPP | 55 |
| 1MBx1-70 | 5.49 |
| 1MBx1-80 | 6.26 |
| SOJ | CALL |

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|---|---|
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| 256x4-80/70 Page, 20pin | 5 |
| 256x4 Video Page 28pin TC524256Z-70 | 7 |
| 256x4 Video 28pin TC524256Z-60 | 10 |
| 1x4-80/70 Page 20pin | 22 |
| 1x4-80/70 Page 20pin DIPP | 25 |

### CACHE MEMORY

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|---|---|
| 32Kx8-20 | $4.95 |
| 32Kx8-15 | 5.00 |
| 64x4-20 | 6.00 |
| 64x4-15 | 9.50 |
| 8Kx8-20 | 2.75 |
| 8Kx8-15 | 3.00 |
| 16Kx4-20 | 2.75 |
| 16Kx4-15 | 3.00 |
| 64x1-20 | 5.75 |
| 64x1-15 | 5.50 |
| 128x8-2 | 38 |
| 128x8-25 | 32 |

## MATH CO's

### INTEL/CYRIX/ULSI

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|---|---|
| 287-10 | $28/29 |
| 8087-1/2/3 | 89/69/29 |
| 287XL Intel Tube | 39 |
| 387SL Intel Tube | 65 |
| 387SX-16/20 | 45/64 |
| 387SX-25 Cyrix | 59 |
| 387SX-33 ULSI | 49 |
| 387DX-20 Intel Tube Box | 34 |
| 387DX-25 Intel | 39 |
| 387DX-33 Intel Tube | 59 |
| 387DX-40 Cyrix/IIT | 69 |
| 4167-25/33 Weitek | 299/525 |

CALL FOR PRICING ON IIT, ULSI & WEITEK

## LASER PRINTER MEMORY

**Price includes Memory, Board & Installation Instructions**

### IBM LASER

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|---|---|
| 4019/4019E 1/2/3.5 MB | $89/119/179 |
| 4029 (All Model) 4 MB | 179 |

### EPSON LASER

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|---|---|
| 6000-2/4MB | $114/175 |
| 7000-2/3 MB | 125/179 |
| Action LaserII-2/3/4/5 MB | 108/139/169/199 |

### HP LASER

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|---|---|
| HPII/IID 2/4 MB Board | $105/189 |
| HP 4/4M 4/8MB | 169/389 |
| HP IIP,IIP+,III,IIID,IIIP 1/2/3/4 | 75/115/154/194 |
| IIsi 4/8 MB | 179/299 |
| LaserJet Fax 1 MB | 82 |
| DeskJet 500/500c 550C 256K | 69 |
| Design Jet Plotter 4 MB | 144 |

### PANASONIC LASER

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| KXP4420/4450/4451 1/2/3/4 MB | 79/108/139/179 |
| KXP4450 1 MB | 111 |
| KXP4455 2 MB | 129 |

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| OL800/820 2/4 MB Board | 107/179 |
| OL810 2/3/4 MB Board | 145/179/219 |

### QMS LASER

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| PS 860, 1700 1/4/8 MB | 53/133/179 |
| PS 815, 825, 815MR, 2/4/6 | 168/232/295 |

### SHARP LASER

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|---|---|
| 9500PS 1 MB | $55 |
| JX-9500/9700 1/1.5/2.5/4 | 105/135/188/344 |

### OTHERS

| | |
|---|---|
| Apple Laserwriter II/IINT/IINTX 4 MB | $169 |
| Brother HL-4 2/3/4 MB | 119/165/189 |
| Brother HL-8E V 1/2 MB | 99/139 |
| Compaq Pagemarq 15 & 20 1/4/8 | 49/139/266 |
| Fujitsu RX7100/7200 1/2 MB | 185/245 |
| Kyocera F800, F800Am F800T 2/4 | 95/137 |
| NEC Silentwriter 90/290 | 99/124 |
| NEC Silentwriter 95 2 MB | 104 |
| TI Microlaser 1 MB | 55 |

## DELL MEMORY

| Model | | P/N | |
|---|---|---|---|
| 433P,33P,325P,33D,325D | | | |
| | 1 MB | 310-2505 | $44 |
| | 4 MB | 310-2507 | 155 |
| 433TE, 425TE & Powerline Workstation | | | |
| | 2 MB | 310-2466 | 109 |
| | 4 MB | 310-2467 | 175 |
| | 8 MB | 310-2468 | 319 |
| | 16 MB | 310-2469 | 649 |
| Power Desktop 486D, D/33, D/25, D/20, D/66 | | | |
| | 1 MB | 310-2505 | $44 |
| | 4 MB | 310-2507 | 155 |
| | 16 MB | 310-2625 | 595 |
| OTHER MODELS | | | CALL |

## CPU CHIPS

| | |
|---|---|
| Cyrix 486DLC 25/33/40 | $65/79/110 |
| INTEL 486DX-33/50/2-50/2-66 | 255/399/299/449 |
| INTEL 486SX-25/33 | 85/139 |

## TEAC FLOPPY DRIVES

| | |
|---|---|
| 1.44 MB | $55 |
| 1.2 MB | $57 |
| Dual Floppy 1.2/1.44 | 145 |
| Heat Sink w/Fan For 486's | 12 |

## COMPAQ MEMORY

| Model | | P/N | |
|---|---|---|---|
| LTE 286 | 2 MB | 117081-002 | $115 |
| | 4 MB | 117081-003 | 175 |
| SLT 286 | 4 MB | 110237-001 | 299 |
| LTE 386S/20 | 2 MB | 12125-001 | 119 |
| | 4 MB | 121125-002 | 195 |
| Contura Lite 20/25 | | | |
| | 2 MB | 129769-001 | 105 |
| | 4 MB | 129769-002 | 155 |
| | 8 MB | 129769-003 | 295 |
| Portable 386 | 1 MB | 107651-001 | 109 |
| | 4 MB | 107653-001 | 299 |
| Portable III | 2 MB | 10-7332-001 | 79 |
| | EBD | 167811-001 | 199 |
| SLT 386 | 2 MB | 118304-001 | 119 |
| | 4 MB | 118305-001 | 185 |
| Deskpro 386S (E. Board) | | | |
| | 4 MB | 11364-001 | 239 |
| | 4 MB | 112534-001 | 169 |
| Deskpro 386/33L, 486/33L, 50/25 | | | |
| | 2 MB | 115144-001 | 99 |
| | 8 MB | 116561-001 | 335 |
| | 32 MB | 116568-001 | 1275 |
| | 6 Socket E Board | | CALL |
| Deskpro 386/20e, 25e (E. Board) | | | |
| | 4 MB | 113645-001 | 99 |
| | 8 MB | 116561-001 | 335 |
| | 32 MB | 116568-001 | 1275 |
| Deskpro 386/20e, 25e (E. Board) | | | |
| | 4 MB | 113645-001 | 239 |
| Deskpro 386/20,20e,25e | | | |
| | 4 MB | 113132-001 | 169 |
| Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M | | | |
| | 2 MB | 118689-001 | 95 |
| | 4 MB | 118690-001 | 145 |
| | 8 MB | 128877-001 | 294 |
| Deskpro 486/33L, 486/50L, 386/33L | | | CALL |
| Prolinea 3/255 & 3/252S | | | |
| | 2 MB | 141738-001 | 105 |
| | 8 MB | 141742-001 | 375 |
| Prolinea 4/33 | 2 MB | 141682-001 | 95 |
| | 4 MB | 141684-001 | 159 |
| | 8 MB | 141685-001 | 299 |
| Other Models | | | CALL |

## TOSHIBA MEMORY

| | | |
|---|---|---|
| T8500, T5200 | 2 MB | 105/335 |
| T5100, T3100, T1600 | 2 MB | 84 |
| T3100SX | 2/4 MB | 105/157 |
| T3200SX, SXC | 2/4 MB | 99/157 |
| T4400SX, SXC, T6400 | 2/4 MB | 135/219 |
| | 8/16 MB | 157/249 |
| T3300SL | 1/2 MB | 99/129 |
| T3100 | 2 MB | 109 |
| T2200SX, SXE, T1000LE | 2/4/8MB | 105/157/279 |
| T1800 Satelite | 2/4/8 MB | 109/159/279 |

## NEC MEMORY

| | | |
|---|---|---|
| Prospeed 286, 386SX/16 | | |
| | 1/2/4 MB | $99/165/229 |
| Prospeed 386 | 2/4 MB | 165/419 |
| Prospeed SX/20 | 1/4 MB | 105/229 |
| Powermate 386/25S | 2/8MB | 129/359 |
| Powermate 486/25E, 486/33I | | |
| | 2/8 MB | 85/345 |
| Powermate Express Series | | |
| | 1/4/16 MB | 69/169/595 |
| Other Models | | CALL |

## NOTEBOOK MEMORY

**LIFETIME WARRANTY**

| | | |
|---|---|---|
| Altima LSX | 2/4 MB | 165/249 |
| Avanti | 2/4 MB | 74/145 |
| AST Premium Exec | 1/4 MB | 75/134 |
| AST Power Exec 3/25 | 4/8/16 MB | CALL |
| Compaq Contura Lite 20/25 | 2/4/8 MB | 105/155/295 |
| Chaplet Notebook | 2/4 MB | 155/249 |
| Chicony 386SX | 4 MB | 189 |
| Chicony 386SL/25 | 2/4 MB | 129/229 |
| DECPC 320P | 2/4/6 MB | 195/269/389 |
| DELL 320N &212N | 1/2 MB | 85/125 |
| DELL 320N, NC | 2 MB | 125 |
| DELL 325N, NC | 2 MB | 179 |
| DELL NL25, NL20 | 2 MB | 179 |
| Epson NBS3 | 1/4 MB | 98/225 |
| Everex Tempo LX | 2 MB | 88 |
| HP 95LX | 1/2 MB | 159/279 |
| IBM L40SX, N33/SX | 2/4/8 MB | 99/155/299 |
| IBM N51SX & SLC | 1/4/8 MB | 99/155/299 |
| IBM PS/2 N45 Sl | 2 MB | 179 |
| MAC PB 160, 180 | 6/10 MB | 249/425 |
| MAC PB 140, 170 | 2/4/6 MB | 89/175/229 |
| MAC PB 100 | 2/4/6 MB | 89/179/239 |
| Magnavox Metalis 386SX | 4 MB | 199 |
| NEC Ultralite 286F | 1/4 MB | 99/199 |
| Packard Bell 386SX | 1/4 MB | 99/229 |
| Panasonic CF 170/270/370 | 1/2 MB | 65/99 |
| Sharp PC 8501 | 2 MB | 105 |
| Sharp 678/6881 | 2 MB | 129 |
| Sampo NB SX/26, SX/25 | 2/4 MB | 145/225 |
| TI Travelmate 2000 | 1 MB | 77 |
| TI Travelmate 3000 | 2 MB | 69 |
| TI Travelmate 4000 | 4 MB | 219 |
| Zenith Turbosport 386 E | 1/4 MB | 95/299 |
| Zenith Supersport SX | 2 MB | 145 |
| Zenith Mastersport | 2 MB | 99 |

## IBM PS/2 & PS/1 MEMORY

| | | |
|---|---|---|
| PS/1 286/386SX | 2/4 MB | $95/149 |
| PS/1 Consultant | | |
| Essential/Expert | 1/2/4/8 MB | 45/79/155/299 |
| 386 Valuepoint | 2/4/8 MB | 89/159/305 |
| 486 Valuepoint | 4/16 MB | 169/595 |
| PS/2 30-286 | 2 MB | 89 |
| 50Z, 55SX, 65SX, 70 | 2/4 MB | 79/145 |
| 40SX, 35SX,35SL | 2/4 MB | 79/149 |
| 70A21, A61, 121 | 2 MB | 109 |
| 80-11, 121, 311 | 4 MB | 210 |
| 95,90,P75, PS/1 Pro | | |
| | 2/4/8 MB | 110/149/305 |
| 16 Bit Exp Bd For | 50, 50Z, 60, 65SX | |
| | 0K | 144 |
| 32 Bit Exp Board for all 70 & 80 models | | |
| | 0K | 164 |
| RISC 6000 | 16/32/64 MB | 745/1490/2890 |
| Other Models | | CALL |

## AST MEMORY

| | | |
|---|---|---|
| Bravo 3/33(LC) 325S | 2/8 MB | $84/299 |
| Bravo 486/25 & 4/33 | 2/8 MB | 109/309 |
| Bravo 486LC | 4/8/16 MB | 145/295/565 |
| Cupid-32 Board | 0K | 219 |
| Premium 386C | 4 MB | 145 |
| Premium SE 450 | 4 MB | 145 |
| Premium 386/25, SX,33,486/25 | | |
| | 1 MB | 40 |
| Premium II 386, 486 | 1/4 MB | 37/145 |
| Executive Notebook | 4 MB | 134 |
| Other Models | | CALL |

## SUN MEMORY

| | | |
|---|---|---|
| SPARC SLC | 4 MB | $145 |
| 3/60, 80, 4/40, 60, 65 | 4/16 MB | 139/495 |
| SPARC 1 &1+, 1Pc | 4/16 MB | 140/499 |
| SPARC 10 | 16/64 MB | 645/CALL |
| SUN Classic | 16 MB | 625 |
| SPARC Server 630np | 64 MB | 2285 |
| SUN IPX, ELC | 4/16 MB | 175/555 |
| SPARC II | 16 MB | 560 |
| Other Models | | CALL |

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### 486DX2-66MHz w/64K Cache
- 1MB Expandable to 32MB on Board
- 8K Internal Cache
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- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

## $630
### 486-50MHz w/64K Cache
**Intel 80486-50MHz CPU**
- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

## $490
### 486-33MHz w/64K Cache
**Intel 80486-33MHz CPU**
- 1MB Expandable to 32MB on Board
- 8K Internal Cache
- 64K External Cache Exp. to 256K
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

## $295
### 486SX-25MHz
**Intel 80486SX-25MHz CP**
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- 8K Internal Cache
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop case w/power suppl
- 101 Enhanced Keyboard

486SX-33MHz .......................... $350

**Optional for 486 Systems**

| | |
|---|---|
| VESA Local Bus | **Add $20** |
| Orchid VESA Local Bus Motherboard | **Add $80** |
| VESA SVGA Card w/1MB | **Add $85** |
| Orchid Fahrenheit VLB w/1M | **Add $140** |
| VESA IDE Card | **Add $30** |

**OPTIONAL:**
w/system purchase

| | |
|---|---|
| 14" Mono Monitor & Card | $100 |
| Super VGA Monitor (1024x768 0.39) w/SVGA Card 512K | $235 |
| Super VGA Monitor (1024x768 0.28) w/SVGA Card 512K | $21 |
| Non-interlaced SVGA Monitor (1024x768 0.28) w/1M Card | $5 |

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**Spectrum 16 Multimedia Sound Card** ............................ **$155**
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### CD-ROMS

**Mitsumi MPC CD-ROM** ............. **$165**
- AT Bus 350ms access time, 150KB transfer rate

**SONY CDU31A** ........................ **$165**
- AT Bus 430ms access time, 150KB transfer rate

**Texel DM-3024N** ...................... **$335**
- SCSI, 265ms access time

**Toshiba XM-3401** ..................... **$375**
- SCSI w/200ms, 330KB transfer rate

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**Discovery CD 8 Bit** .................. **$370**
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## $350
### 486SLC2-50MHz

IBM 486SLC2 CPU w/16K Cache
Motherboard manufactured in the USA by IBM
1 MB RAM expandable to 16MB
1.2 or 1.44MB Floppy Drive
1.1 Interleave HD/FD Controller
Tower or Desktop Case w/power supply
101 Enhanced Keyboard

| | |
|---|---|
| 86SLC2-50MHz VESA | $410 |
| 86SLC2-66MHz VESA | $460 |

### 486-40MHz w/64K Cache

| | |
|---|---|
| w/AMD 486-40MHz CPU | $480 |
| w/Cyrix CPU, Math Chip | $345 |

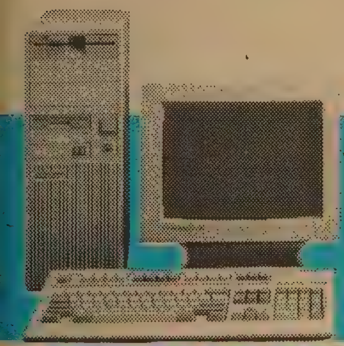
- 1MB RAM Expandable to 32 MB
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Tower or Desktop Case
- 101 Enhanced Keyboard

## $270
### 386-40MHz w/64K Cache

- 1MB Expandable to 32MB on Board
- 64K Static Cache Memory
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1:1 Interleave HD/FD Controller
- Socket for 80387
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard

## $240
### 386SX-33MHz

- 1MB Expandable to 16MB on Board
- Shadow RAM
- 1.2 or 1.44MB Floppy Drive
- 1.1 Interleave HD/FD Controller
- Tower or Desktop case w/power supply
- 101 Enhanced Keyboard



| | | | |
|---|---|---|---|
| • 85MB 16MS | $150 | • 212MB 16MS | $190 |
| • 125MB 16MS | $130 | • 240MB 15MS | $265 |
| • 170MB 16MS | $175 | • 510MB 12MS | $475 |

## Keyboards

| | |
|---|---|
| Mitsumi 101 Key | $39 |
| Keytronic 101 Key | 45 |
| Maxiswitch 101 Key | 45 |

## Floppy Drives

| | |
|---|---|
| TEAC/Epson 1.2MB | $55 |
| TEAC/Epson 1.44MB 3.5" | 55 |

## Hard Disks

| | |
|---|---|
| Conner 3000 40MB | $130 |
| Conner 85MB | 170 |
| Conner 30104 120MB | 180 |
| Maxtor 7120A 130MB 15ms | 180 |
| Conner 170MB | 190 |
| Western Digital 210MB | 215 |
| Maxtor 210MB | 215 |
| Conner 250MB | 235 |
| Maxtor 340MB | 290 |
| Western Digital 340MB | 290 |
| Conner 3504 510MB 12ms | 495 |
| Fujitsu 512MB 12ms | 575 |
| Maxtor 1.2GB SCSI | 925 |
| Fujitsu 1.2GB SCSI | 925 |

## Modems

| | |
|---|---|
| 2400 Baud (Int) | $30 |
| 2400 Baud (Ext) | 50 |
| Fax Modem (9600 Fax, 2400 Modem) | 50 |
| 14,400 Modem, 14,400 Fax | 135 |

## Interface Cards

| | |
|---|---|
| Mono Graphic Card | $20 |
| VGA Card (16 Bit 800x600) | 30 |
| OAK SVGA (1024x768 512K) | 40 |
| Trident VGA w/1M RAM | 55 |
| Orchid Fahrenheit (1280x1024) w/1MB VRAM | 150 |
| Orchid Fahrenheit VLB w/1MB | 150 |
| ATI Ultra Pro w/2MB VRAM VLB | 330 |
| Orchid P9000 VLB w/3MB | 375 |
| Diamond Viper w/2MB | 375 |
| AT M I/O (2S,1P,1G) | 25 |
| IDE Card w/cable | 25 |
| Promise IDE VESA Cache Controller | 145 |
| Adaptec SCSI 1542C w/Kit | 245 |
| Adaptec 1742 EISA SCSI | 375 |

## Monitors

| | |
|---|---|
| 14" Flat Screen | $95 |
| Super VGA (1024x768) .39 | 205 |
| Super VGA (1024x768) .28 | 245 |
| Non-Interlaced SVGA Monitor | 260 |
| Sony 1304S/1430 | 535/575 |
| Sony 1604/1730 | 920/975 |
| Viewsonic 6 | 295 |
| Viewsonic 7 | 870 |
| Viewsonic 15 | 475 |
| Viewsonic 17 | 1040 |
| Viewsonic 8 | 1510 |
| NEC 3FGE/4FGE/5FGE | 590/690/1070 |

## Motherboards

| | |
|---|---|
| 386SX-33MHz | $105 |
| 386-40MHz 64K Cache | 155 |
| 486SX-25MHz | 170 |
| 486-33MHz w/64K Cache | 370 |
| 486-50MHz w/64K Cache | 505 |
| 486DX2-66MHz w/64K Cache | 570 |
| IBM 486SLC2-50MHz | 200 |
| IBM 486SLC2-50MHz VESA | 260 |
| IBM 486SLC2-66MHz VESA | 310 |

## Printers

| | |
|---|---|
| Panasonic KX-P 1123 w/cable | NEW $195 |
| Panasonic KX-P 1624 w/Cable | 345 |
| Panasonic 1124i w/Cable | 285 |

## Miscellaneous

| | |
|---|---|
| 387SX | $60 |
| 387-25/33/40 | 65/75/85 |
| 150W (XT) Power Supply | 40 |
| 230W Power Supply | 48 |
| Logitech Mouse Man | 65 |
| Logi Trackman | 75 |
| Microsoft Serial/Bus Mouse (New Version) | 85 |
| DFI Mouse (3 Button, Microsoft Comp.) | 15 |
| Mini Vertical Case w/PS | 55 |
| Mid Mini Vertical Case w/PS | 85 |
| Full Vertical Case w/PS | 110 |
| Colorado 120MB Tape Backup | 150 |
| Colorado 250MB Tape Backup | 165 |
| 16 Bit Ethernet Card | 69 |
| WD SMC Elite Ethernet 16 Bit | 135 |
| RAM DIP / SIPP/ SIMM | Call |

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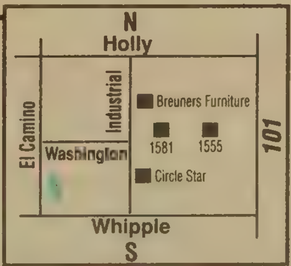

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| SYSTEM | Mainboard +CPU | Basic System |
|---|---|---|
| 486DX2-66/256K PCI | $755 | $887 |
| 486DX-50/256K PCI | $712 | $844 |
| 486DX-33/256K PCI | $566 | $698 |
| 486DX2-66/128K VLB | $531 | $663 |
| 486DX-50/128K VLB | $479 | $611 |
| 486DX-40/128K VLB | $327 | $459 |
| 486DX-33/128K VLB | $343 | $475 |
| 486DX2-66/128K ISA | $521 | $663 |
| 486DX-50/128K ISA | $469 | $601 |
| 486DX-40/128K ISA | $317 | $449 |
| 486DX-33/128K ISA | $332 | $464 |
| 486SLC2-66/64KVLB | $270 | $402 |
| 486SLC2-50/64K VLB | $223 | $355 |
| 486DLC-40/64K ISA | $140 | $272 |
| 486DLC-33/64K ISA | $124 | $256 |
| 486DX2-66/256K NICE EISA VESA | $666 | $798 |
| 486DX-50/256K NICE EISA VESA | $614 | $746 |
| 486DX-33/256K NICE EISA VESA | $478 | $610 |
| 486DX2-66/256K ORCHID VLB | $578 | $710 |
| 486DX-33/256K ORCHID VLB | $390 | $522 |
| 386DX-40/64K ISA | $102 | $235 |

## SPECIAL BASIC

- * Motherboard w/CPU+4MB RAM 70ns
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- * 512K SVGA Card
- * 101 Enhanced Keyboard
- * Enhanced Case w/230 Watt Power Supply
- * Microsoft Compatible Mouse
- * Mouse Pad

| | |
|---|---|
| 486DX2-66/256K PCI | $1472 |
| 486DX2-50/256K PCI | 1429 |
| 486DX2-33/256K PCI | 1283 |
| 486 DX2-66/128K VESA LOCAL BUS | 1236 |
| 486 DX-50/128K VESA LOCAL BUS | 1185 |
| 486 DX-40/128K VESA LOCAL BUS | 1034 |
| 486 DX-33/128K VESA LOCAL BUS | 1050 |
| 486 DX2-66/128K ISA | 1226 |
| 486 DX-50/128K ISA | 1174 |
| 486 DX-40/128K ISA | 1024 |
| 486 DX-33/128K ISA | 1039 |
| 486 SLC2-66/64K VLB | 978 |
| 486 SLC2-50/64K VLB | 931 |
| 486 DLC 40/64K CACHE | 849 |
| 486 DLC-33/64K CACHE | 833 |
| 486 DX2-66/256K NICE EISA VESA | 1370 |
| 486 DX-50/256K NICE EISA VESA | 1319 |
| 486 DX-33/256K NICE EISE VESA | 1184 |
| 486 DX2-66/256K Orchid VLB | 1282 |
| 486 DX-33/256K Orchid VLB | 1096 |
| 386 40/64K CACHE | 812 |

## BEST BUY SYSTEM

*486-40 /128K AMD*
*VLB MB w/CPU*
*+8MB RAM*
*+1.2&1.4 FD*
*+340MB HD*
*+SPIDER VLB 1MB*
*+Viewsonic 6E*
*+ IDE VLB+ mini case*
*+Focus 2001 keyboard*

**$1400**

## OPTIONS

| | ADD |
|---|---|
| -Non-Int Monitor | $20 |
| -Viewsonic 6E Monitor | 50 |
| -KFC 15" Non-Int | 180 |
| -PCI Graphic Card 1MB | 200 |
| -SPIDER BlackWidow 1M | 160 |
| -LocalBus SPIDER | 50 |
| Luminat 24Bits 1MB | 25 |
| -Trident 1MB | 20 |
| -170MB Hard Drive | 30 |
| -Orchid Farenheit VLB | 90 |
| -250 MB Hard Drive | 50 |
| -340 MB Hard Drive | 130 |
| -IDE VESA Localbus | 25 |
| -Medium case | 25 |
| -Full Tower | 50 |
| -Logitech Mouse | 55 |
| -Microsoft mouse | 35 |
| -486 DLC 40 MathCo | 35 |
| -486 DLC 33 MathCo | 20 |
| -486 SLC MathCo | 40 |

**BASIC SYSTEM Includes: Motherboard &CPU, 1MB RAM, 1:1 2HD/2FD controller, w/ 1P/2S/1G, 1.2 or 1.44 MB FD, enhanced case w/Power supply, 101 Keyboard.**

## HARD DRIVES

| | |
|---|---|
| 80mb/18ms (IDE)- Conner CP30084E | 145 |
| 120mb (IDE) Conner CP30104 | 158 |
| 130mb/15ms (IDE) Maxtor 7120AT | 158 |
| 170mb/16ms (IDE) Conner CP30124 | 170 |
| 213mb (IDE) Maxtor 2213AT | 210 |
| 245mb/15ms (IDE) Maxtor | 205 |
| 250mb/15ms (IDE) Conner | 205 |
| 340mb/13ms (IDE) Maxtor/Corner | 275/265 |
| 1 GB Toshiba MK537FB | 780 |
| 1.2 GB - 13ms (SCCI) Fujitsu | 870 |
| 1.7 GB - 13ms (SCCI) Maxtor | 1125 |

## MULTIMEDIA

| | |
|---|---|
| Creative Lab Soundblaster | $65 |
| Creative Lab Soundblaster Pro | 105 |
| Creative Lab Soundblaster Pro Deluxe | 115 |
| Creative Lab SoundBlaster Pro 16 ASP | 190 |
| MultiMedia Power w/ CD ROM+ SoundBlaster Pro+5 CD titles | 330 |
| MEDIAVISION ProAudio Spectrum 16 | 145 |
| Pro16 MultiMedia System | 640 |
| Diamond Sonic w/SCSI | 230 |
| NEC CD ROM 84M (280ms) | 390 |
| Mitsumi CD ROM w/Card (350ms) | 160 |
| SONY CD ROM 31A (490ms) | 155 |
| TOSHIBA CD ROM 3401 (200ms) | 360 |
| Texel CD ROM DM 3024N | 338 |
| Chinon CD ROM CDS535 | 335 |

## PRINTERS

| | |
|---|---|
| Panasonic KX-P1123/2023 | $165/195 |
| Panasonic KX-P1124i/1624 | 235/345 |
| Panasonic KX-P2180/2123 | 155/215 |
| Panasonic KX-P2124/2624 | 315/375 |
| HP DeskJet 500/500C | 295/395 |
| HP DeskJet 550C/HP 4L | 585/665 |
| HP IIIP/HP IV/HP 4M | 845/1325/1825 |

## VIDEO CARDS

| | |
|---|---|
| Trident VGA-512/1MB (1024x768,16bit) | $35/55 |
| ET4000 16M colors | 70 |
| Diamond SpeedStar Pro ISA w/1MB | 115 |
| Diamond SpeedStar Pro VLB w/1MB | 115 |
| Diamond Stealth 24VESA Local bus w/1MB | 155 |
| Diamond Stealth Pro VRAM w/1MB/2MB | 245/346 |
| Diamond Viper VESA Localbus w/2MB | 375 |
| SPiDER 32VESA Local Bus w/1MB/2MB | 93/143 |
| SPiDER 32VLB Plus w/1MB/2MB | 115/165 |
| SPiDER BlackWidow VLB w/1MB/2MB | 190/240 |
| Orchid Farenheit 1280Plus w/1MB | 135 |
| Orchid Farenheit Localbus w/1MB | 135 |
| Orchid Farenheit VA VLB | 150 |
| Orchid Celsius 1MB | 200 |
| ATI Graphic Ultra plus w/2MB | 230 |
| ATI Graphic Ultra Pro ISA w/2MB | 315 |
| ATI Graphic Ultra Pro VLB w/2MB | 315 |
| ATI Graphic Ultra w/mouse | 160 |

## MONITORS

| | |
|---|---|
| Nanao F340iw 15"/F550i 17" | $650/975 |
| Nanao F550iw 17"/T560i 17" | 1060/1615 |
| Nanao F760iw 21"/T660i 21" | 1980/2315 |
| NEC 3FGE/ 4FGE | 574/674 |
| NEC 5FGE/6FGE | 1,063/2,250 |
| MAG 15F (1280x1024,0.28) | 456 |
| MAG 17F (1280x1024,0.26) | 870 |
| MAG LX 1564 15"/15F MPR | 405/500 |
| SONY CPD 1430s 14"/1604s 17" | 575/895 |
| SONY CPD 1730 17" | 975 |
| SONY GDP 2036s 20"/2038 20" | 1890/2125 |
| HITACHI CM-2085 20"/2087 20" | 1270/1520 |
| HITACHI CM-2187 21" | 1880 |
| Viewsonic 4E/6E/7 | 264/285/825 |
| Viewsonic 15/17/20/21 | 440/940/1610/1850 |
| KFC 15"/KFC 17" | 420/750 |
| Mini micro intrl (1024x768) monitor 0.28 | 240 |
| Mini micro Non-interlaced Monitor 0.28 | 250 |

## CONTROLLER CARDS

| | |
|---|---|
| IDE w/IO | $15 |
| IO with 2s/1p/1g | 12 |
| VESA Localbus IDE | 35 |
| Orchid IDE VLB w/ IO | 59 |
| Promise IDE DC 200/DC 203 | 98/119 |
| Promise IDE DC2040/1430VL | 205/135 |
| Adaptec SCSI 1522 | 83 |
| Adaptect SCSI 1542C/1542C w/Kit | 185/230 |
| Adaptec SCSI 1742/2742 | 326/315 |
| Adaptect EISA SCSI 2742TK | 360 |
| Ultra Stor SCSI 14F/24F EISA | 190/359 |
| Ultra Stor SCSI 34F VLB | 270 |
| Monochrome card | 12 |

## KEYBOARDS

| | |
|---|---|
| 101 Enhanced keyboard | $18 |
| Maxiswitch | 28 |
| Keytronics | 30 |
| Focus 2001/9000 | 36/60 |
| Omnikey 101/102/Ultra | 65/65/86 |

## MISCELLANEOUS

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|---|---|
| Internal Modem 2400 Baud | $24 |
| Fax Modem (9600 F, 2400 M)/Window | 42 |
| Fax Modem (14400 F, 14400 M) | 120 |
| US Robotics Modem 9600/14,400 | 144/148 |
| US Robotics Fax/Modem 14,400 | 158 |
| 3-Button mouse | 10 |
| Microsoft mouse serial/bus/new | 42/64/45 |
| Logitech Mouseman serial (4000dpi) | 42 |
| Logitech Mouseman Bus (4000dpi) | 55 |
| Colorado Tape backup DJ-10 120M | 134 |
| Colorado Tape backup DJ-20 250M | 164 |
| Colorado Trakker 120MB | 288 |
| Colorado Trakker 250MB | 336 |
| Baby AT/Mini Tower case w/230W PS | 45 |
| Medium Tower case 2/230W PS | 72 |
| Full Tower case w/230W PS | 85 |
| Dual Floppy Drive 1.2+1.4MB | 125 |

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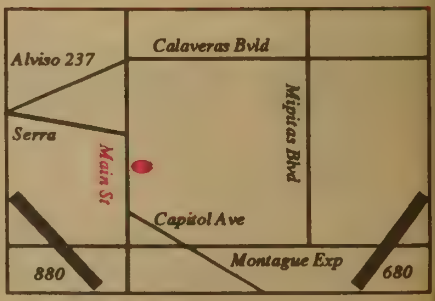

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| Sound Blaster Pro 16 ASP with CD ROM Interface | **209** |
| SummaSketch III 12x12 4 or 16 Buttons Digitizer | **279** |
| Fujitsu 520MB IDE/SCSI II Hard Disk | **585** |
| Quantum 520MB IDE/SCSI II Hard Disk | **585** |
| Pro Audio Spectrum 16 Sound Card with SCSI Interface | **149** |
| Toshiba CD-ROM 256K Buffer 200ms 330KB/sec. | **375** |
| Mitsumi CD-ROM 280ms with 16bit Controller | **225** |

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| All system board come with CPU & no RAM | |
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| AMI Enterprise III 486DX2 66 256K EISA VLB | CALL |
| Diamond FastBus 486DX2 66MHz 256K Cache | CALL |
| Orchid SuperBoard 486 DX 33MHz VLB 256K | CALL |
| Micronics 486DX2-66MHz VESA Local Bus 256K | CALL |
| NICE US Made 486DX Mini EISA VLB 256K | CALL |
| NICE US Made 486DX-33MHz ISA VLB 256K | 495 |
| Comet 486DX 33MHz VLB 128K with ZIF Socket | 455 |
| Comet 486DX 33MHz ISA 128K Cache | 425 |
| Comet 386 40MHz 128K RAM Cache | 175 |
| Comet 386SX 25MHz with CPU | 130 |

### Hard Drives

| | |
|---|---|
| Conner CP30104 120MB 17ms | 185 |
| Conner CP30174E 170MB 17ms | 209 |
| Conner CP30204 212MB 256K Cache 12ms | 239 |
| Conner CP30334 340MB 12ms | 309 |
| Maxtor LXT7120A 130MB 15ms | 189 |
| Maxtor LXT7213A 212MB 15ms | 225 |
| Maxtor MXT7245A 245MB IDE 15ms | 245 |
| Maxtor LXT7345A 340MB 13ms | 309 |
| **Fujitsu Hard Drives: 5 Year Warranty** | |
| Fujitsu M2624 520MB IDE 3.5" 11ms | 585 |
| Fujitsu M2624 520MB SCSI 3.5" 11ms | 585 |
| Fujitsu M2694ESA 1.0GB SCSI 3.5" 10ms | 959 |
| Quantum ELS 85AT 85MB IDE | 169 |
| Quantum ELS127AT 127MB IDE 15ms | 189 |
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| Teac 360KB/1.2KB 5.25" Floppy Drive | 50/50 |
| Teac 3.5" 1.44MB Floppy Drive | 50 |
| Teac Dual 1.2 & 1.44MB Floppy Drive | 129 |

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|---|---|
| 200W XT Size Power Supply | 59 |
| 250W AT Size Power Supply for Desktop | 59 |
| 230W PS2 Size Power Supply | 59 |
| 250W AT Size Power Supply for Tower | 69 |
| 300W PC Power Cooling for Full Tower | 185 |
| American Power Conversion UPS | CALL |

### Monitors

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|---|---|
| 14" Relisys Paper White Monochrome Monitor | 120 |
| 14" Samsung Paper White VGA Mono Monitor | 135 |
| 14" Addonics SVGA 1024x768 .39mm Monitor | 229 |
| 14" Addonics SVGA 1024x768 .28mm Monitor | 265 |
| 14" Addonics SVGA 1024x768 .28mm NI Monitor | 295 |
| 14" ViewSonic 6E SVGA 1024x768 NI Monitor | 310 |
| 15" MAG MX15F 1280X768 .28mm SVGA Monitor | 520 |
| 15" NEC 4FGe 1024x768 .28mm 76Hz NI Monitor | 699 |
| 17" Sony 1730 1024x768 70Hz .25mm NI Monitor | 975 |
| 17" ViewSonic 17 1280x768 .28mm NI Monitor | 1095 |
| 17" Nanao F550i 1280x1024 .28mm 75Hz Monitor | 1020 |
| 17" Nanao F550iw 1280x1024 .28mm 75Hz Monitor | 1100 |
| 17" MAG MX17F 1280x768 .26mm NI Monitor | 1050 |
| 17" NEC 5FGe 1280x1024 74Hz .28mm Monitor | 1150 |
| 17" NEC 5FG 1280x1024 74Hz .28mm Monitor | 1350 |
| 20 Sampo AlphaScan 1280x1024 .31mm Monitor | 1150 |
| 20" ViewSonic 20 1280x1024 .31mm NI Monitor | CALL |
| 21" Nanao F750i .31mm Flat Screen Monitor | CALL |

### Multimedia

| | |
|---|---|
| Media Vision Fusion CD 16 Multimedia System | 475 |
| Pro Audio Spectrum 16 Sound Card with SCSI Interface | 149 |
| Sound Blaster Pro 16 ASP with CD Rom Interface | 209 |
| NEC CDR84 Internal MultiSpin CD-ROM 280ms | 399 |
| Mitsumi CD-ROM 280ms with 16bit Controller | 225 |
| Toshiba CD-ROM 256K Buffer 200ms 330KB/sec. Int/ Ext. | 388/479 |
| Future Domain 8bit CD-ROM Adapter w/ Driver | 59 |
| Intel Smart Video Recorder | 525 |

### Modems

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|---|---|
| Intel Internal 14.4K/14.4K Fax/Modem | 185 |
| Intel SatisFAXtion Model 200 14.4K/2400 Fax/Modem | 185 |
| Intel SatisFAXtion Model 300 9600/14.4K Fax/Modem | 235 |
| Intel SatisFAXtion Model 400 14.4K Fax/Modem | 295 |
| Intel SatisFAXtion Model 400e 96/14,4K Ext. Modem | 350 |
| Intel 14.4EX External Modem with 16MHz Processor | 350 |
| GVC 14.400 V.32bis V.42bis Int./ Ext. Fax/ Modem | 165/185 |
| GVC 96/2400 Baud Internal Fax/Modem | 70 |
| Complete PC 96/24 Fax/Modem for Windows | 99 |

### Network

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|---|---|
| Ethernet & Arcnet Adapters | CALL |
| Artisoft Lantastic Products | CALL |
| Network Adapters | CALL |
| Novell Netware 2.2/3.12/4.0 | CALL |

### Video Adapters

| | |
|---|---|
| ATI Ultra Pro ISA 2MB VRAM Video Adapter | 359 |
| ATI Ultra Pro VLB 2MB VRAM Video Adapter | 359 |
| ATI Ultra Pro EISA 2MB VRAM Video Adapter | 409 |
| Diamond SpeedStar Pro ISA/ VLB 1MB RAM | 125 |
| Diamond Stealth 24 VLB 1MB RAM Accelerator | 165 |
| Diamond Stealth Pro VLB 1MB/ 2MB Accelerator | 265/365 |
| Diamond Viper VLB 2MB VRAM Video Adapter | 399 |
| Hercules Graphite ISA 1MB VRAM Accelerator | 260 |
| Hercules Graphite VLB 1MB/2MB VRAM Accelerator | 299/420 |
| Orchid Fahrenhei 1280 Plus ISA w/ 1MB RAM | 150 |
| Orchid Fahrenhei 1280 VLB 1MB Video Adapter | 155 |
| Accumos Windows Accelerator 256/ 512K | 45/65 |
| Trident 8900 Chip Set 1MB SVGA Adapter | 69 |
| Matrox VLB Graphic Adapter | CALL |
| #9 GXi Video Adapter Lever 25 to 29TC | CALL |
| #9GXE Level 10/11/12 Graphics for Windows | CALL |

### Input Devices

| | |
|---|---|
| Keytronic / Mitsumi 101Keys Enhanced Keyboard | 45/40 |
| Northgate 101 or 102 / Ultra Enhanced Keyboard | 79/89 |
| Logitech 400dpi Serial/Bus Mouse Man | 55/75 |
| Microsoft Version II 400dpi Serial/Bus Mouse | 59/79 |
| SummaSketch III 12x12 4 or 16 Buttons Digitizer | 279 |
| Thrusmaster Flight Control System Joystick | 82 |

### Controllers & Adapters

| | |
|---|---|
| 2 Serial, 1 Parallel, 1 Game Ports Card | 18 |
| IDE with 2 Serial, 1 Parallel, 1 Game Ports | 30 |
| Kouwell 2S/1P/1G w/ HiSpeed 16550 UART Chip | 55 |
| STB 2S/1P/1G HiSpeed 16550 & Bi-Dir Parallel Port | 64 |
| Ultrastor ESDI Controller w/32K Buffer | 169 |
| UltraStor 34F VESA Local Bus SCSI Bus Master | 265 |
| Adaptec 1522/ 1542C Kit SCSI Host Adapter | 155/255 |
| Adaptec 1742 EISA SCSI 32Bit Adapter Kit | 429 |
| Promise IDE W/ 512K Cache Upgradable to 8.5MB | 135 |
| Promise IDE W/ 0Mb Cache Upgradable to 16MB | 155 |
| Promise IDE VLB Cache Host Adapter | 239 |

### Tape Backups

| | |
|---|---|
| Colorado 250MB Ext. Parallel Port Tape Backup | 375 |
| Colorado 120/250MB Internal Tape Backup | 159/189 |
| Palindrome DAT Tape Backup for Novell Netware | CALL |
| Mountain & Archive Tape Backup | CALL |

### Scanners

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|---|---|
| Umax UC630 600dpi 24bit Flatbed Color Scanner | 895 |

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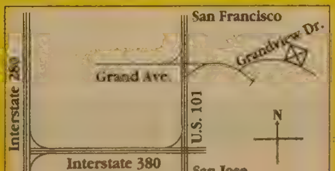

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| **486DX-50 VLB** | $717 | | | | $1,393 | $1,650 | $1,733 | $1,978 |
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| **486DX2-66 EISA** | $813 | | | | $1,451 | $1,708 | $1,791 | $2,036 |
| **486DX2-66 ISA** | $721 | | $1,008 | $1,249 | $1,359 | $1,617 | $1,699 | $1,944 |
| **486DX-33 ISA** | $512 | $711 | $799 | $1,040 | $1,150 | $1,408 | $1,490 | $1,735 |
| **486DLC-33 ISA** | $306 | $505 | $592 | $833 | $943 | $1,201 | $1,284 | $1,529 |
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|---|---|---|---|---|---|---|
| Motherboard | DIAMOND Fastbus | MICRONICS MX-30** | ORCHID | AMI Super Voyager** | MUSTANG**ISA/VESA | PEGASUS M EISA/VESA |
| Power | 486-66 256K CACHE | 486-66 256K CACHE | 486-66 256K CACHE | 486-66 256K CACHE | 486-66 256K CACHE | 486-66 256K CACHE |
| Video Power* | 50 winmark | 26 winmark | 50 winmark | 42 winmark | 54 winmark | 54 winmark |
| RAM | 8MB-70 exp to 128MB | 8MB-70 exp to 64MB | 8MB-70 exp to 32MB | 8MB-70 exp to 64MB | 8MB-70 EXP TO 32 | 8MB-70 EXP TO 128MB |
| BIOS | DIAMOND | PHOENIX | AMI | AMI | AMI | AMI |
| Exp. Slots | 2 VESA, 5 ISA | 2 VESA, 6 ISA | 2 VESA, 5 ISA | 2 VESA, 6 ISA | 2 VESA, 5 ISA | 2 VESA, 6 EISA |
| Floppy Drives | 1.2, 1.44 Teac Drives | Same | Same | Same | Same | Same |
| HFC/IO | 32 bit orchid VLB | 32 bit orchid VLB | 32 bit orchid VLB | 32 bit orchid VLB | 32 bit mustang VLB | Promise w/2MB Cache |
| Case,230 UL | Med Tower 230 PS | Same | Same | Same | Same | Same |
| Keyboard | Keytronic/Maxi Switch | Same | Same | Same | Same | Same |
| Video Card | DIAMOND-VIPER | ATI-ULTRA PRO | ORCHID CELSIUS 9000 | #9 LEVEL 11 | SPIDER BLACK WIDOW | SPIDER BLACK WIDOW |
| Spc. Features | 2MB VRAM<br>1280X1024X256Clr 74Hz NI<br>1024x768x66kClr, 76Hz NI | 2MB VRAM<br>1280X1024X16Clr 74Hz NI<br>Same | 1MB VRAM<br><br>Same | 2MB RAM<br>Virtual rsltn upto 2048x1024<br>1024x768x66KClr, 100Hz NI | 1MB DRAM<br>1280x1024 16clr 60Hz NI<br>1024x768 256clr 72Hz NI | 1MB DRAM<br>1280x1024 16clr 60Hz NI<br>1024x768 256clr 72Hz NI |
| 32bit Proc | WEITEK P9000 | MACH32 | WEITEK P9000 | S3 928 GUI Accelerator | S386C805 | S386C805 |
| Video Mnfr # | 408-736-2000 | 416-756-0711 | 510-683-0300 | 617-674-0009 | 408-956-1231 | 408-956-1231 |
| **Price** | **$1,695** | **$1,861** | **$1,481** | **$1,939** | **$1,441** | **$1,774** |

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1.44 MB 3.5" FD
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Labtec CS800 Speaker
Hitachi Accu PS21
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Windows 3.1
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| | | | | | | |
|---|---|---|---|---|---|---|
| Motherboards and Cases | **MOTHERBOARDS** | **ISA M/Bs** | **VLB M/Bs** | **VLB/EISA M/Bs** | **CASES** | **HDD CASES** |
| | 486 DLC-40 w/64k cache, Cyrix/TI<br>......$145 | 486DX-33 Intel w/64k<br>....$339<br>486DX2-66 Intel w/64k<br>....$549 | 486DX-33 Intel w/256k<br>....$369<br>486Dx2-66 Intel w/256k<br>....$569 | 2VLB/3EISA 486DX-33 w/256k<br>....$509<br>2VLB/8EISA 486DX-33 w/256k<br>.....$579 | Premium Mini-Tower 1.2mm, 200w Power Supply<br>1 pc ........$44<br>5pc's ...$199 | 3.5" Removable IDE<br>.....$39<br>External SCSI Hard Drive Case<br>$79 |
| DRIVES | **IDE 3.5"** | **IDE 3.5"** | **IDE 3.5"** | **SCSI 3.5"** | **SCSI 3.5"** | **SCSI 5.25"** |
| | Maxtor 130MB 14ms<br>.....$154<br>Conner 250MB 14ms<br>.....$199 | WD 340MB 12ms<br>....$259<br>WD 425MB 13ms<br>.....$375 | Conner 510MB 14ms<br>....$440<br>Fuji 520MB<br>....$575 | Fuji 1.2GB 10ms<br>.......$890 | Seagate 1.2GB 10ms<br>.....$889 | CON 1.67GB 11ms<br>.....$999 |
| MONITORS | **20"** | **21"** | **17"** | **17"** | **15"** | **14"** |
| | Magnavox 20"<br>....$1140<br>Hitachi CM 2095<br>....$1275 | Hitachi CM2187<br>.....$1875<br>Hitachi Accuvue PS21A .28 Microprocessor<br>......$2200 | F 550 IW Nanao<br>.....$1065<br>Hitachi CM1785<br>....$879 | Royal .31, 1024x768 NI<br>.......$485<br>Sampo 1777 1280x1024, .28 MRP II<br>...$895 | MAG LX 1564, .28 1280x1024<br>.....$455<br>NEC 3FGE<br>....$575 | Orchestra 14" .28 NI<br>.......$239<br>Orchestra 14" .28<br>.......$219 |
| NETWORKING | **CARDS** | **HUBS** | **CONNECTORS** | **CABLES** | **Novell PC Terminal** | **PRINT SERVERS** |
| | NE2000 C 16Bit w/TC PIP,NFS etc. Drivers<br>......$49<br>5 Pack .....$219 | Advanced LAN 8+1 Port Concentrator<br>.....$219<br>(By order) | BNC Twist /Crimp<br>BNC T-Connector<br>BNC 50 Ohm Terminator<br>BNC Extender<br>Any .....$0.89 | RG58 10'/25'/50' w/connectors<br>.....$3 /6 /8<br>1000' Roll RG58 Twisted Pair ....$69 | Diskless, Novell Remote Boot w/Keyboard & Monitor<br>.....$299 | Eagle NPE 400 Pocket Print Server<br>...$309<br>PC Based 1 MB Print Server<br>....$199 (by order) |
| MULTIMEDIA | **CD-ROMs** | **Multi-Media Kits** | **Multi-Media Kits** | **Multi-Media Kits** | **Multi-Media Kits** | **Multi-Media Kits** |
| | Texel 3028, 335kb/s Fast<br>....$336<br>Toshiba CD-ROM<br>....$349 | Mitsumi CD-ROM + Mutimedia Pkg. (Sound Card, 6 Titles & Spk)<br>....$230 | Toshiba CD-ROM, ProAudio (OEM), SCSI Cable, Speaker (2)<br>....$510 | Panasonic CD-ROM<br>...$562<br>w/Interface Card Double Speed<br>....$238 | Orchestrator w/ Toshiba CD-ROM, IS/Card Compel, Media Blitz, Bookself, Sound Lib, Kings QuestV, Mother Goose<br>.......$650 | Orchestrator with Sony CD-ROM, sound card<br>.....$400 |

COUPON PURCHASES: No Refunds; While Supplies Last; Cash or Company Check Only; One Coupon per Customer; Available at Participating ASA Stores Only; Not Valid with any other Promotion; Walk-In Sales Only; No Demo

Tel#s: (800)-REAL-PCS (408) PCs-FOR-U
(800)-732-5727 (408) 496-6953
(510) 256-9938 in Pleasant Hill. CA

**ASA COMPUTERS, INC**

2354 Calle Del Mundo. Santa Clara. CA
Open Mon - Fri 9 - 6:30: Sat 10 - 4

# MICRO MARKETPLACE

**(408) PCs-FOR-U ASA COMPUTERS 1-800-REAL-PCs**

## LOCAL BUS

### MOTHERBOARDS

*(Many of our new M/Bs have Pentium Socket)*

| | |
|---|---|
| Mustang 486SX-25 | $184 |
| MustangT 486-33/50/66...w/256k .......w/Pentium Socket | $425/568/482 |
| MustangF 486-33/50/66 w/256k | $389/535/588 |
| **Pegasus M vlb Eisa/Vesa Pentium ready ...486-33/50/66.w/256K** | **$530/675/730** |
| ORCHID 486-33/50/66-256K | $435/575/630 |
| Diamond Fstbs 33/50/66.w/ideio | $491/635/690 |
| **Micronix 486-33/50/66** | **$675/817/874** |
| **AMI Super Voyager 486-33/50/66 w/256k...** | **$699/842/899** |
| **AMI Enterprise IV 486-33/50/66 w/256k.... ....EISA/VESA** | **$922/1065/1120** |

### CONTROLLERS

| | |
|---|---|
| **Mustang** IDE/IO | $41 |
| ORCHID IDE/IO vlb | $63 |
| DTC 2272 VLB IDE / IO wo/Game | $61 |
| DTC 2270 VLB 8.3MB/sec IDE / IO | $79 |
| DTC VLB 3270 SCSI | $120 |
| Promise DC-4030 VLB 4HD/2FD | $175 |
| Forex Bus-Master VESA,50Hz | $205 |
| BusLogic BT445S VLB Fast SCSI-II | $289 |
| **Mustang** IDE/IO Cach15.6mb/sec | $170 |
| UltraStor SCSI 34F, 32k Card..10mb/sec. | $259 |
| UltraStor SCSI 34F, 32k Kit | $319 |
| AMI SCSI VLB | $470 |

### GRAPHIC ADAPTERS

(wm = winmark ver2.5)

| | |
|---|---|
| DIAMOND Stealth 24vlb S3-805.1mb dram | $164 |
| DIAMOND Stealth pro 1/2MB ram,36wm | $257/336 |
| DIAMOND Viper 1/2MB,9000,50wm | $296/385 |
| ORCHID Fahrenheit S3-805, 1/2MB | $152/196 |
| ORCHID Same w/voice annotation | $199 |
| ORCHID Celsius 1MB | $235 |
| ORCHID P9000 2MB | $363 |
| Spider 32 VLB 1MB,20 WM | $94 |
| Spider 32 VLB Plus 1MB | $109 |
| Spider Blk windows 1MB 54 WM | $219 |
| Spider Blk windows 2MB | $286 |
| ATI Ultra Pro, 1/2MB, 26wm | $296/352 |
| **Mustang VLBCirrus logic1/2MB** | **$89/130** |

## NOTEBOOKS

### ESCORT

| | |
|---|---|
| 386SL/25,80MB,2MB-CLR | $1760 |
| 486SLC/33,80MB,HDD,2MB | $1395 |

### BONDWELL

| | |
|---|---|
| 486SLC/25, 80MB, HD, 4MB | $1429 |
| 486SLC/33, 130MB, HD, 4MB | $1569 |

### TWINHEAD SLIMNOTE

| | |
|---|---|
| 386 SXL-25, 2MB, 60MB / 80MB | $1294 / $1339 |
| 486 SLC-33, 2MB, 80MB/130MB | $1650 / $1794 |

### LEADING EDGE

| | |
|---|---|
| 386 SXL-25, 4MB, 80MB | $1431 |
| 386 SL-25, 2MB, 80MB, COLOR | $1980 |

### CHAPLET/SUNRACE

| | |
|---|---|
| 386 SX25, 4MB, 80MB/120MB | $1199/$1399 |
| 486 SLC, 2MB, 80MB/120MB | $1475 / $1599 |

(........the only notebook w/SCSI port........)

Call for high end notebooks and notebook accessories..............

## MOTHERBOARDS

*(Many MB,s have Pentium Socket) See Local Bus Section*

| | |
|---|---|
| 286-12/20 | $42/55 |
| 386SX-33/40 | $72/75 |
| **Stallion 386DX-40 w/64k Cache** | **$119** |
| **Stallion 486SLC-25 Cyrix** | **$135** |
| **Stallion 486SX25** | **$170** |
| **Stallion 486DLC-33/40 w/64K** | **$158/172** |
| **Stallion 486SX33 64k** | **$234** |
| **Stallion 486DX-33 with 64/256k** | **$364/379** |
| **Stallion 486DX-50/66 w/256k** | **$528/582** |
| **Stallion EISA 486DX-33/50 w/256k** | **$457/600** |
| **Stallion EISA 486DX2-66 w/256** | **$655** |

*Call for pricing of M/Bs w/o CPU*

## CONTROLLERS

| | |
|---|---|
| IDE 2FD-2HD/4FD-2HD | $12/26 |
| IDE w/ 2SPG..gen | $16 |
| **IDE Caching Ultrastor 15C (upto 8MB)** | **$195** |
| **IDE Caching Promise DC200 2FD/4HD** | **$112** |
| **IDE Caching Promise DC2032 2FD/4HD,IO** | **$149** |
| IDE EISA DTC | $135 |
| Kouw 531 4Port Serial wo/w16C550 | $69/109 |
| Kouwell 2spg 16C550 | $45 |

### SCSI

| | |
|---|---|
| **Future Domain Comp** | **$52** |
| **Trantor SCSI Adapter** | **$67** |
| **Future Domain TMC1680 SCSI II C/K** | **$165/245** |
| DTC3292K..7HD&4FD | $349 |
| **DTC3290AS 7HD&4FD Caching** | **$486** |
| **ADAP 1522 Card/Kit** | **$79/142** |
| **ADAP 1542C Card/Kit** | **$199/245** |
| **ADAP 1542C+ Kit** | **$310** |
| **ADAP 2742 EISA Fast SCSI2 C/K** | **$319/379** |
| ALWAYS IN2000/IN2000-Pro SCSI1 | $179/225 |
| **BusLogic BT747S EISA Fast SCSI2 Kit** | **$395** |
| **Ultar24F EISA SCSI HD/FD** | **$365** |
| **Promise DC2040 Caching(upto 16MB)** | **$215** |
| **AMI EISA Cache** | **$499** |
| **DPT Smart CachePlus+EISA SCSI** | **$427** |
| Trantor348 Parallel Port to SCSI | $179 |

### ESDI

| | |
|---|---|
| DTC | $127 |
| **Ultra 12C 1/4MB** | **$370** |
| Ultra 22F Caching EISA | $340 |

## ADAPTERS

*(See Local Bus and CAD Sections too)*

| | |
|---|---|
| MGP | $12 |
| Color Card | $23 |

### VGA/SVGA

| | |
|---|---|
| VGA 256k | $26 |
| Trident 512K/1MB | $35/52 |
| Tseng 1MB | $78 |
| Mustang 1MB Window Accel | $58 |
| **Diamond Speedstar Pro** | **$139** |
| **Diamond Stealth 24** | **$164** |
| Fahrenheit Plus wo/w VA | $165/219 |
| **Hercules Graphite** HG210SVGA 1280x1024I w/1MB | **$255** |
| **Hercules Graphite** HG420SVGA 1280x1024I w/2MB | **$440** |
| **AMI Fast View w/2MB Weitek P9000** | **$490** |
| **AMI Fast View EISA VGA Graphics w/1MB** | **$call** |
| **ATI Ultra Grpx 1MB w/Mouse** | **$239** |
| **ATI Ultra Plus w1/2MB** | **$219/245** |
| **ATI Ultra Pro w1/2MB** | **$329/365** |

## MONITORS

### MONO

| | |
|---|---|
| Mono 12" | $78 |
| Mono 14"....amber/white | $89 |
| Mono 9" VGA | $125 |
| Mono 14" SVGA 1024 x 768 | $112 |

### VGA/SVGA

| | |
|---|---|
| **VGA 13" .28 Color.refurb..1yr** | **$160** |
| VGA 14" 640 x 480, .51 | $173 |
| SVGA 14" 1024x768 .39 | $192 |
| **SVGA 14" 1024 x 768, .28 dpi** | **$227** |
| CTX Autoswitch 1024, .28 dpi | $252 |
| SVGA 14" 1024x768 .28 NonInt | $251 |
| **Black SVGA 1024,.28 I/NI** | **$279/320** |
| **CTX 14" 1024 .28dpi Hitachi NI** | **$270** |
| Viewsonic V6E 14", 1024 .28 NI | $323 |
| Viewsonic 15, 1280 .28 NI | $530 |
| Sony 1430S 14" 1024 MicroPro MPRII | $563 |
| Lion Tech 15" .28 NI | $355 |
| Samsung15" NI Flat .28dpi 72 Hz, | $449 |
| Sampo KDM1566 15"1024 .28 NI | $439 |
| ***Royal 17" .26 1024*** | ***$665*** |
| **Mitac 17" .31dpi 1024 72Hz NI** | **$475** |
| Sampo KDM1766 17" | $655 |
| **Maganavox20" 1280 x 1024 NI** | **$1250** |

*See Many High-End Monitors in the Engineering/CAD Section.*

## CASES/PS

| | |
|---|---|
| **Baby Desk/Mini Tower w/ PS** | **$49** |
| **Medium Tower** | **$77** |
| **Full Tower/Super T. w/PS** | **$89/155** |
| **Rack Mount W/PS** | **$259** |
| **File Server w/ 400W PS, 3 Fans.........12 F/HDD, black/beige** | **$439** |

### DIAMOND (Black/Beige)

| | |
|---|---|
| **Baby Desk/Tower w/PS** | **$79/82** |
| **Medium Tower Reg/Big w/PS** | **$89/119** |
| **Full Tower w /PS** | **$129** |

### External HDD Cases

| | |
|---|---|
| **1HH...65W** | **$89** |
| **1FH/2HH...65W** | **$110** |
| **2FH/3HH...65W** | **$137** |
| **SCSI Cables Int/Ext** | **$9/10** |

### Power Supplies

| | |
|---|---|
| **PS2 200/300W** | **$40/95** |
| **Full Tower 230W** | **$58** |
| **Full Tower 300/400** | **$80/154** |

## KEYBOARDS, MICE

| | |
|---|---|
| Spill Resistant/Mitsumi | $20/17 |
| MaxiSwitch / M-Click | $29/34 |
| KeyTronic | $35 |
| BLACK 101 | $39 |
| Small 11.5" 84 Keys | $42 |
| **SEJIN J-Mouse (mouse under 'J' Key)** | **$89** |

Also line of European/Arabic KBs

| | |
|---|---|
| S-Mouse/TBall | $9/21 |
| LogiTech wht box Ser/Bus | $33/45 |
| LogiTech MouseMan Ser/Par | $64 |
| Microsoft white box S/B | $39/69 |
| **BLACK SERIAL** | **$19** |

## HARD DRIVES

### Floppy Drives

| | |
|---|---|
| Teac 1.2/1.44MB | $47/42 |
| Teac Dual Floppy 1.2 + 1.44 MB | $116 |
| Teac 2.88 MB | $89 |
| Toshiba 2.88MB | $58 |
| (w/contl & 2.88 floppy disk) | $94 |

### FLOPTICALS

| | |
|---|---|
| IOMEGA 21MB w/1 Disk, Cable | $419 |
| YE-DATA 21MB w/5 Disks | $392 |

### 2.5" NOTEBOOK DRIVES

| | |
|---|---|
| QUN 120 /160MB 16msec | $245/419 |

### IDE

| | |
|---|---|
| ST 42MB 27 msec | $115 |
| CON 80/120MB 19 msec | $144/156 |
| QUN 85/127MB 17 msec | $157/164 |
| **MXT 131/540MB 14/8msec** | **$162/740** |
| CON/QUN 170MB 17 msec | $168/175 |
| CON 212MB/MXT 213 12/15msec | $202/194 |
| QUN 240MB/MXT 245MB Fast/15 msec | $230/215 |
| CON/WD250MB 14msec | $205/208 |
| WD 340/MXT 340MB 12/14 msec | $275/280 |
| CON 340MB 13msec | $271 |
| WD 425MB 13msec | $359 |
| FUJ 520MB 11 msec 5yr | $590 |
| QUN 525MB Fast | $550 |
| CON 540MB 12msec | $$526 |

### SCSI - 3.5"

| | |
|---|---|
| QUN 85/127MB 17msec | $175/190 |
| CON 170MB 17msec | $194 |
| CON 212MB 12 msec | $280 |
| MXT 245/QUN 240MB Fast | $220/240 |
| MXT 340MB 15 msec | $330 |
| FUJ 520/QUN 525MB 11 msec 5 yr | $593/550 |
| MXT 540MB/CON 540 8/12 msec | $735/537 |
| **TOSH 877MB/1.2GB 12 msec** | **$730/880** |
| **MXT 1.2GB 8 msec Magix** | **$1175** |
| HP 1.2GB 10.5msec | $1040 |
| ST/FUJ 1.2GB 10 msec | $918 |
| QUN 1.0/1.2GB <10 msec | $920/1036 |
| DEC 1.6GB 9.5 msec | $1160 |
| CON 1.67GB 10.5msec | $1015 |
| ST 2.1GB 9 msec | $1775 |

### SCSI - 5.25"

| | |
|---|---|
| HP 1.7GB/2.0GB 11.5 msec | $1830/2030 |
| ST 1.7GB 11 msec Elite I | $1715 |
| Fuj 2.0GB/2.4 11/12 msec | $1700/1646 |
| ST 2.2GB/2.5GB 13 ms/11 ms Elitell | $1569/1980 |
| ST 3.5GB 11msec | $2212 |

### SUPER HARD DRIVES

Seagate Barracuda 3.5" HH (8 msec ........avg. seek, 4.17 msec lat., 7200 RPM)

| | |
|---|---|
| Barracuda 1.7/2.5 GB | $1925/2100 |

**EXTERNAL HRD. DRV. SUBSYSTEM**

*FOR EXT. HARD DRIVE, ADD $99*

**FLASH CARD HARD DRIVE**

| | |
|---|---|
| ST 75A 1.8" 5.2MB IDE<1.5MS | $484 |
| ST710A/720A 1.8" 10.4MB/20.9MB | $888/1177 |
| ST740A 1.8" 41.9MB IDE<1.5ms | $2068 |

## TAPE DRIVES

### (<500MB TAPE-BACKUPs)

| | |
|---|---|
| Colorado 120 / 250MB | $105/167 |
| Colorado KE-10 External kit with card | $105 |
| Colorado External port card | $37 |
| FC-10 high perf card | $85 |
| Colorado Trakker 120 / 250MB | $295 / 340 |
| Archive 250MB w/QIC, 15MB/min, 1"H | $150 |
| **Archive** Viper 250MB hh SCSI I/E | $349/ 449 |

### (>500MB for PC / SERVER)

| | |
|---|---|
| Viper 525MB hh SCSI Int/Ext 6MB/sec | $475/575 |
| ARCHIVE 4320 NT 2.0GB DAT DDS 3.5" | $875 |
| ARCHIVE 4324NT 4.0GB TURBO DAT DDS-DC 3.5" | $1075 |
| SONY SDT2000 2.0GB DAT DDS 3.5" | $870 |
| SONY SDT4000 4.0GB DAT DDS DC 3.5" | $979 |
| SONY SDT5000 4.0GB DAT DDS-2 3.5" | $1245 |
| Colorado 2.4 / 4.0 GB Qic 5.25 | $940/1499 |
| HP 2GB DAT 4mm Int/Ext | $989/1075 |
| HP 4-8GB DAT 4mm Int/Ext | $1128/1179 |
| WANGDAT 3100 2.0GB 4mm Int/Ext | $935/1045 |
| WANGDAT 3200 4-8GB 4mm Int/Ext | $1030/1140 |
| EXABYTE 750MB HH SCSI MINI Int/Ext | $692/860 |
| EXABYTE 8205 5GB HH 2yrs Int/Ext | $1415/1679 |
| EXABYTE 8505 10GB HH 2yrs Int/Ext | $2239/2505 |

..(above drives require special contr & soft drivers)

### TAPE BACKUP DRIVERS

| | |
|---|---|
| Novaback for DOS//OS/2 | $89 |
| Novanet Multiuser NLM | $439 |
| **SYTOS** for DOS/NOVELL, GEN | $120 |
| **ARCserve** Solo | $185 |
| CONNER-EXEC NLM BACKUP SW | $445 |

## OPTICAL DRIVES

### ERASABLE(Rewritable)

| | |
|---|---|
| TEAC 128MB 3.5" Int/Ext | $749/859 |
| IBM 127MB 3.5" Int/Ext | $833/943 |
| HP 1.3GB 5.25" SCSI-2 EXT | $2799 |
| MAXOPTIC 1GB Tahiti IIM 35msec | $2300 |

## REMOVABLE DRIVES

| | |
|---|---|
| Syquest 44MB Dr. | $249 |
| ......W/Ext Case, Cables, Cart, Cont | $379 |
| Syquest 88/105MB Dr. | $308/469 |
| Bernoulli 44/99 Insider | $907/840 |
| IDE: Upto 1GB removable kits | $39 |
| SCSI: Upto 1GB Removable Kits | $138 |

## STORAGE MEDIA

| | |
|---|---|
| Floppy 1.44 Bulk | $.79 |
| Floppy 1.2 Bulk | $.49 |
| Tape DC2000XL | $18 |
| Tape DC2120 250MB..Formatted | $18.5 |
| Tape DC 6250 5.25", 1/4" Cartridge | $27 |
| Tape DC 6525 5.25", 1/4" Cartridge | $31 |
| TK50 for DECs | $26 |
| DT-2400 2.4GB .25" Cartridge | $54 |
| DT-4000 4.0 GB .25" Cartridge | $57 |
| DAT 4mm 60/90 mtr | $19/29 |
| DAT 8mm 54/112 mtr | $18/24 |
| Syquest 44/88/105MB Cart | $62/94/85 |
| Bernoulli 44MB/90MB 3Pk | $315/415 |

### OPTICAL CARTRIDGES

| | |
|---|---|
| Magneto-Optical 650MB Cartridge | $159 |
| 600MB/650MB 5.25" | $109/149 |
| 128MB 3.5" | $59 |
| 10024 B/S WORM 5.25" | $109 |

## SOFTWARE

### UTILITIES

| | |
|---|---|
| Norton Utilities V7.0 | $107 |
| Norton Anti-Virus V2.1 | $78 |
| QEMM 386 V7.0 | $59 |
| After Dark V2.0A/WIN | $26/30 |
| Star Trek Screen Saver | $34 |
| PC Tools V8.0A | $112 |
| Auto/Disk Doubler V1.07/V3.76 | $55 |
| Fastback Plus V3.1/Stacker 3.1 | $99/94 |
| WAVE FOR WINDOWS V2.0 | $70 |

### DESKTOP AND GRAPHICS

| | |
|---|---|
| Adobe Type Manager V2.5 | $66 |
| More Fonts 3.0 | $75 |
| Grammatik FOR WIN V2.0 | $69 |
| Norton Desk Top/WIN V2.2 | $102 |
| Corel Draw V4.0./UPGRADE | $359/295 |
| Pagemaker/WIN V5.0 | $499 |
| Harvard Graphics For Windows | $295 |
| Approach V1.0 WIN | $250 |
| AMI Pro 3.0 | $279 |
| Professional Write v2.2 | $159 |
| WordPerfect Win5.2/DOS6.0 | $295/289 |
| WordStar 7.0 FOR DOS | $269 |
| MS Word For Windows 2.0/Upg | $299/145 |
| Super Paint V3.0 | $115 |
| Micrographx Graphics Works | $179 |

### DATABASE

| | |
|---|---|
| Access For Windows | $99 |
| CA-Clipper V5.2 | $469 |
| DBASE IV V2.0 | $470 |
| FoxPro For Windows /DOS 2.5 Upgrade | $199 |
| FoxPro LAN (6-Pak) | call |
| Paradox V4.0/Win | $479/129 |
| Q & A 4.0 | $210 |
| Superbase 2.0 WIN | $345 |
| LOTUS SMARTSUITE | $445 |
| GUPTA SQL FOR DOS | $2795 |
| GUPTA SQL GATEWAY FOR NETWARE | $3495 |
| GUPTA SQL ROUTER/SQL SERVER | $195 |

### ACCOUNTING

| | |
|---|---|
| CA-Accpac BPI Integrated | $150 |
| CA-Accpac Simply Accounting DOS | $79 |

**CA-Accpac Plus..............All Modules**
**......w/ Support............$Best Pricing**

**.......Supplementary Modules.....**
**......Many Available......$Best Pricing**

| | |
|---|---|
| DAC Easy Accounting/Payroll 4.3 | $95/72 |
| ACCOUNTING BONUSPACK V 4.4 | $155 |
| Peachtree Complete Accounting V7.0 | $179 |
| Office For Windows 3.0 | $459 |
| Project For Windows 3.0 | $425 |
| Profit For Windows V1.0 | $130 |

### SPREADSHEETS

| | |
|---|---|
| Improv FOR WIN | $99 |
| LOTUS WORK V3.0 | $89 |
| MS Excel 4.0 | $299 |
| MS Works For Windows | $130 |
| Quattro Pro V4.0 WIN/DOS | $99 |

### COMMUNICATIONS

| | |
|---|---|
| Procomm Plus 2.01/Win 1.02 | $79/97 |
| Co-Session | $95 |
| WinFax Pro 3.0 For Windows | $82 |
| Norton PC Anywhere 4.5 | $75 |
| Prodigy Start-Up Kit 3.2 | $29 |

### OPERATING SYSTEMS

| | |
|---|---|
| MS-DOS 6.0 Upgrade | $80 |
| Windows NT 3.1/Upgrade | $312/266 |
| IBM OS/2 V2.1 | $149 |

## NOVELL WORKSTATION

Novell Ready and Tested. W/Remote Boot Prom, Keyboard and Monitor; Diskless.

**$295.00**

## DISK PACK DRIVES

Portable Mechanically Protected Hard Drives for High Security Applications - Millitary and Corporate.

**$Call**

## RAID DISK ARRAYS

Redundant Arrays of Inexpensive Drives for fault tolerancy. 5 channels and hot swapping.

**$Call**

## Fault-Tolerant SERVERS

Novell or Unix Servers w/ Disk Mirroring & Duplexing, Synchronous Disk Support and Hot Swapping

**$Call**

## VOICE MAIL SYSTEMS

For small and medium size companies - phone system automation. PC based 2, 4 or more ports.

As low as **$5500**

## EXPORT QUALITY PCs

386SX-40, 1MB, IDE, I/O, 1.44FDD, 14" SVGA Monitor, 512K Card, K/B, Mouse (Min 50 pcs)

**$439**

## CAD/CAM

### Monitors

#### Nanao

| | |
|---|---|
| F340iw 15", .28, 72Hz, MPRII, Microp. | ($655) $733 |
| F550iw 17" FST 1280NI, .28, 75Hz NI | ($1075) $1152 |
| F760iw 21" FST 1280NI, .31 | ($2085) $2190 |
| F550i 17", FST .26, MPRII | ($1007) $1080 |
| T560i 17", FST .28, MPRII | ($1640) $1780 |
| T660i 20" Trin, 1280, 72Hz, MPRII | ($2395) $2560 |
| F750i 21", .31, 1280, 72Hz, Micrp | ($2028) $2128 |

#### Hitachi

| | |
|---|---|
| CM1785MV 17' FST, .28. 1280NI, MPRII | ($889) 930 |
| CM2095 20" 1280 AntiGlare | ($1279) $1376 |
| CM2087 20" 1280 72Hz Microp | ($1569) $1689 |
| CM2187 21" FST 1600x1280 Micr | ($1925) $1960 |
| CM2187-515 21" .28 | ($2125) $2195 |
| ACCUVUE PS-21 | ($2079) $2216 |
| ACCUVUE PS-21A/PS-21 .28., Micr | ($2245) $2391 |

#### Sony

| | |
|---|---|
| CPD1430/1730 14"/17" | ($563) $630/($965) $1047 |
| GDM2036S 20", .1280NI, MPRII | ($1975) $2089 |
| GDM2038 20" | ($2212) $2347 |

#### Sampo

| | |
|---|---|
| Sampo KDM1777 17" NI 1280x1068 .28dp MRPII | $899 |
| Sampo KDM2077 20" NI 1280x1068 .31dp..MPRII | $1495 |

#### Magnavox

| | |
|---|---|
| 20CM64 20", 1280NI, .31 | ($1149) $1213 |

#### NEC

| | |
|---|---|
| 3/4FGE 15", .28, 1024NI | ($577) $626/($712) $738 |
| 5FGE/FG 17", .28, NI | ($1076) $1151/($1295) $1405 |
| 6FG 21", .28, 1280NI | ($2285) $2350 |

#### MAG

| | |
|---|---|
| MX17F, 17" .26, 1280NI, Micro Org/Oem | ($900) $940 |
| LX1564 15" .28, 1280NI | ($410) $430 |
| MX15F 15"/15" MPR II | ($469) $488/($515) $534 |

#### PHILIPS

| | |
|---|---|
| 1557AS 1024x768 | $565 |
| 1762DT 17", TRIN, .25, 1280NI, Micrp, MPRII | $1090 |
| 2082DC 20", TRIN, .30, 1280, 72HZ | $1999 |
| 2182DC 21" .28, 1600X1280, Micrp, MPRII | $2459 |

### CAD ADAPTERS

*(Also See Local Bus and Adapters Sections)*

#### NUMBER NINE - #9GXI/GXE

| | |
|---|---|
| L23 WIND/ACAD, T34020, 1280, 16C | $929 |
| L25F, 40MHZ, WIN/ ACAD,, 1280, 256C | $1195 |
| L29 T34020, 1024X768X16.7M COLOR | $1315 |
| L11/I12 S3928, 2MB/3MB VRA | $365/438 |

#### HERCULES

| | |
|---|---|
| GRAPHITE 1 MB, VRAM 1280 Accel | $289 |
| Chrome C731, 40MHZ, 3MB, 72 Hz | $1399 |
| Super SXP610/821, 40MHz, 1MB | $749/1399 |

#### MATROX

| | |
|---|---|
| MGA-IMP/1/A//IMP/2/A//IMP/3/A | $495/695/985 |
| Impression UltraXG3ASIC 1600, 7 MB | $3595 |

#### METHEUS CORPORATION

| | |
|---|---|
| Premier 928VL4S386C928, MultiDisplay | $619 |
| 1104 Plus 256 Hz, MultiDisplay | $1295 |
| UGA 1228Hz 256, 60/74Hz | $1895/2095 |

#### NATIONAL DESIGN

| | |
|---|---|
| WARP 24LB2SC 86C928, 2MB, 1280 | $479 |
| AT 1600 4+1MB, 1600 | $2995 |

#### VIDEO SEVEN

| | |
|---|---|
| SPEA FIRE T134020, 1280X1024, 3D | $1349 |
| SPEA 1280 4MB, 1280X1024X256 | $1849 |

## PLOTTERS DIGITIZERS SCANNERS

### PLOTTERS

#### HOUSTON INSTRUMENTS

| | |
|---|---|
| Im Maker 1117, A/B, 8 Pen, HPGL | $632 |
| DMP-161 A-D, 8 Pen, HP-GL/2 | $2625 |
| DMP-162 A-E, 8 Pen, HP-GL/2 | $3439 |
| DMP-162R A-E, 8 Pen, Roll Med | $3975 |
| V50(INKJET A-C SIZE).....NEW | $1410 |

### DIGITIZERS

#### SUMMAGRAPHICS

| | |
|---|---|
| III 12x12 w/16btn or 4bt & Pen | $299 |
| III 12x18 w/16btn or 4bt & Pen | $549 |

#### KURTA

| | |
|---|---|
| XLP 12x12 w/4btn & Pen | $249 |
| XLP 12x18 w/16btn or 4btn, Pen | $529 |
| IS/ONE 12x12/12x17 4btn/ 12btn/ Pen | $329/530 |
| (IS/ONE also available w/Cordless 4btn or Pen) | |
| XLC 18 x 24/24 x 36 | $1070/1260 |

#### CALCOMP

| | |
|---|---|
| CALCOMP 12 X 12/12 x 18 | $279/629 |
| CALCOMP 18 X 24 | $1275 |
| CALCOMP 6 X 9/12 x 12 P Series | $439/485 |

### SCANNERS

#### LOGITECH (HAND-HELD)

| | |
|---|---|
| SCANMAN-COLOR | $415 |
| SCANMAN 256 / CatchWord PRO | $180/209 |
| SCANMAN 32 / CatchWord PRO | $115/125 |

#### MICROTEK

| | |
|---|---|
| SCANMAKER II/IIXE 1200dpi, MAX | $851/1140 |
| SCANMAKER 1850 1850 dpi MAX | $1360 |
| MS-II OCR SCANNER | $669 |
| ADF-600 Automatic Sheet Feeder | $480 |
| SCANMAKER 45t for Transparencies | NEW |

#### RELISYS

(Cold Tube Design-Long Life,4 Times Microtek e.tc)

| | |
|---|---|
| COLDSCAN 800 dpi..w/PPLE | $975 |
| COLDSCAN 600 dpi..w/PPLE | $825 |
| COLDSCAN 600 dpi Grayscale..w/PPLE | $665 |
| ................Calera WordSacn w/Scanner | $64 |
| 50 Page Automatic Document Feeder | $394 |

#### ARTISCAN

| | |
|---|---|
| 600/800dpi with colorshop | $770/1040 |
| 1200C 1200 dpi, with color shop software | $1490 |
| ..Picture Pub LE or WordScan OCR | $64 |
| ..Slide Scan Kit for 6000C/8000C | $550 |
| ..Slide Scan Kit for 1200c | $650 |

### UPS's

#### AMERICAN POWER

| | |
|---|---|
| APC-BK250, 7 min, 386SX, ws | $101 |
| APC-BK400, 10 min, 286, 386SX, ws | $163 |
| APC-BK600, 15 min, 386 486 FS | $265 |
| APC-BK900/1250, 15 min, Multiple FSs | $379/506 |
| Power Doctor/Call UPS | $70/99 |
| SMART UPS (ON-LINE/AUTO BACKUP) | |
| APC 400, 10 min, 286, 386 FS/WS | $304 |
| APC 600LS, 15 min, 386, 486 FS/WS | $394 |
| APC 900, 15 min CAD/CAM WS/FS | $569 |
| APC 1250, 15 min, Multiple FSs | $747 |
| APC 2000, 20 min, Mini Computers | $1170 |
| SERENA 5.25" 300VA UPS mounts inside PC | $call |

INTERFACE KITS/SMART MONITORING

| | |
|---|---|
| Power Chute SCO Xenix | $84 |
| Power Chute Plus for Novell/Unix, Xenix | $72/115 |
| UPS Monitoring Board for Novell | $69 |

## PRINTERS

| | |
|---|---|
| **Star** Micronix NX1001 9 Pin. 120/220V | $134/144 |
| **Epson** Action 2250 9 pin | $119 |
| IGOR 132 9Pin Wide 220V (Cyri..).in stock | $139 |

#### CANON

| | |
|---|---|
| BJ 200, 360dpi, 49k, 7fnts, 248cps, 4ppm | $319 |

#### OKIDATA

| | |
|---|---|
| OL400e, 4ppm, 300dpi | $535 |
| OL810, 8ppm, 300dpi | $965 |
| OL830 Plus, 8ppm w/ 2MB post script | $1189 |
| OKI ML184T dot matrix, rugged industrial | $245 |
| OKI ML320 320cps | $315 |
| OKI ML590 24 pin..auto form sensing | $464 |

#### PANASONIC

| | |
|---|---|
| KX-P2123, N-Carr, 240cps, 360dpi, 10fnts | $255 |
| KX-P2124, N-Carr, 320cps, 360dpi, 12fnts | $335 |
| KX-P1624, W-Carr, 192cps, 360dpi, 14fnts | $365 |
| KX-P4410, 5ppm, 300dpi, 28fnts, 512k | $629 |
| KX-P4410, 5ppm, 300dpi, 28fnts, 512k | $629 |

#### Citizen

| | |
|---|---|
| 200GX 9 pin...dual feeder, park | $159 |
| GSX230 24 pin. 8 fonts, 270cps | $240 |
| color option for Citizen 80 col printers | $42 |
| GSX240 24 pin wide.....300cps, 13 fonts | $285 |
| **Notebook** Pr. CTZPN48 w/bat | $290 |

### Laser Ext Memories

| | | |
|---|---|---|
| HP IIP, IIIP | 2/4MB | $104/179 |
| HP II, IID | 2/4MB | $114/184 |
| HP IIISi | 1/4MB | $69/188 |
| **HP IV** | **4/8MB** | **$169/359** |
| Pan 441/2/30, 4450i | 2/4MB | $138/198 |
| Pan 4450 | 1MB | $129 |
| Pan 4455 | 2MB | $154 |
| Oki400 | 2MB | $109 |
| Oki 800, 820 | 2/4MB | $113/183 |
| Oki 810 | 1/2MB | $104/179 |
| Epson 6000 | 2/4MB | $124/189 |
| Epson 4000/8000 | 1/4MB | $124/199 |

*(Printer sharing: Please see the Networking section)*

### FAST MATH-COs

#### by CYRIX / INTEL / IIT

| | |
|---|---|
| 2C87-10/XL | $32/$39 |
| 3C87SX-16/20/25 | $55 |
| 3C87SX-33 | $69 |
| 3C87DX-25/33 | $69 |
| 3C87DX-40 | $75 |

### SIMMS/SIPPS

| | |
|---|---|
| 256x9-80/70 | $Call |
| 1Mx9-80/70/60 | $Call |
| 4Mx9-80/70/60 | $Call |
| DRAMs, and other SIMMs | available |

#### ESIMMs - SUN / PC / LaserJet

| | |
|---|---|
| 1M/2M/3M\x 36 - 80 / 70 | $Call |

### COUPONS

17" ROYAL MONITOR
.31, 1024X768 NI
$485

PANASONIC CD-ROM #562
W/ INTERFACE CARD DOUBLE SPEED
$238

## MULTI MEDIA

| | |
|---|---|
| Mitsumi Kit 350msec | $159 |
| Hitachi CD-ROM CDR6700 260ms.300kb/s | $495 |
| NEC CDR-84/74 280ms..300KB/sc/E | $449/555 |
| TOSHIBA 3401B/E 200ms Int/Ext | $369/499 |
| Texel DM 3024/5024 265ms Int/Ext | $369/459 |
| Teac CD50, Multispin, 270ms, 300kb/s | $309 |
| 6PAK [World/USAtlas, Chessmster, Typing Tutor, Anmals&Ency] | $84 |

Over 200 titles in stock (call for price sheet)

### Sound Boards / MPC Kits

| | |
|---|---|
| Hyena Sound Blaster Comp. Sound Card | $49 |
| Hyena w/Speaker, Joystck, mcrphn, games | $75 |

#### MEDIA VISION

| | |
|---|---|
| Pro Audio Spectrum 16....ORG/OEM | $159/142 |
| Pro Audio Studio 16/Power Pack | $199/69 |
| Fusion Double CD16 Kit Int/Ext | $465/478 |
| Pro 16 Multi-Media System/II | $669/810 |
| Pro Movie Spectrum/Studio II | $289/329 |
| Midi Mate | $49 |
| CDPC XL | $1059 |

#### CREATIVE LABS

| | |
|---|---|
| Discovery 8/16 Upgd. Kit | $380/460 |
| Edutainment 8/16 Upgd. Kit | 459/519 |
| Software Dev. Kit | $99 |
| SoundBlaster 16/16ASP | $169/193 |
| Sound Blaster Voice Editor | $55 |
| Wave/Video Blaster | $229/309 |

#### TRUE VISION

| | |
|---|---|
| Targa+16 | $1239 |
| Atvista 2/4MB | $2477/3300 |
| Bravado 16 1MB | $1065 |

#### MISC

| | |
|---|---|
| Logitech Fotoman Digital Camera for PC | $465 |
| Logitech SoundMan 16 | $149 |
| Intel Smart Video Recorder | $520 |
| CARDINAL TECH Digtl Sound Pro 16/Plu | $145/186 |
| Video Logic Captivator Kit, win3.1 | $369 |
| Future Domain SCSI CD-ROM Kit | $69 |

## COMMUNICATIONS

### MODEMS / FAXES

| | |
|---|---|
| 2400 Modem/Fax Int. w/MNP5 sw [send fax] | $29 |
| 96/24 FAX/Mod DOS/Windows Internal | $49 |

#### ADTECH - Made in USA

| | |
|---|---|
| 96/24 Fax/Modem MNP5, V.42bis hardware | $79 |
| 14.4/14.4 Modem/Fax V.32bis & V.42bis | $150 |
| Pocket/Notebook Fax/Modem 96/48/24 | $84 |

#### THE COMPLETE PC

| | |
|---|---|
| The Complete Comm Reg/Gold | $299/389 |

#### AT&T Paradyne

| | |
|---|---|
| DataPort 14.4 Fax V.32bis External | $249 |
| DataPort 14.4 Fax V.32bis Internal...[205*] | $225 |

#### US ROBOTICS

| | |
|---|---|
| 9600 Sprtstr Modm V.32 V.42bis Int/Ext | $146/152 |
| 9600 Sport Mod/fax V.32 V.42bis Int/Ext | $159/168 |
| 14,4 Sport Mod V.32bis V.42bis Int/Ext | $155/173 |
| 14,4 Sport Mod/Fax V.32b V.42b Int/Ext | $160/192 |
| 14.4 sporst Mac Mod/fax | $214 |
| 14,400 HST Courier Dual V.32bis | $759 |
| Modem Sharing Single/Dual Kit | $495/889 |
| World Port PCMCIA 14,4 with Fax | $435 |

#### INTEL

| | |
|---|---|
| Satisfaction 100/200/400+Fax Int | $105/295/389 |
| Satisfaction 400+Fax Ext | $409 |

#### NATIONAL SEMI-CONDUCTOR

| | |
|---|---|
| TYIN2000 Fax, Mod, Answer M/C, Audio Play | $175 |

#### ZYXEL USA

| | |
|---|---|
| U-1496 +/E 16.8Ext, 14,4 Fax, Voice | $355/675 |
| U-1496B 16.8Int, 14,4 S/R Fax, Voice, Win | $355 |
| U-1496B+ 19.2Int, 14,4 S/R Fax, Voice, Win | $460 |
| U-1496+/E+ 19.2Ext, 14.4Fax, Voi, Mac | $495/675 |

## NETWORKING

### ETHERNET Adapters

| | |
|---|---|
| NE 2000 Comp 16bit Coax/10BT | $49/64 |
| NE2000 Comp 5 Pack | $235 |
| D-Link 16 Bit 10 BaseT 1/6 Pack | $74/429 |
| Intel EtherExpress 16 Coax/TP | $129/129 |
| Intel EtherExpress 16 MCA/16 MCATP | $179 |
| Intel EtherExpress 32 EISA Coax | $424 |
| Intel EtherExpress Flash/C | $145 |
| SMC Ethercard 16 Ultra Coax/6 Pk | $109/574 |
| SMC Ethercard PlusIA for MCA/TP | $179 |
| SMC Ethercard Plus Elite 16 CoaX/TP | $119/95 |
| 3 Com 503 Etherlink II 16 Bit COAX/TP | $169/175 |
| 3 Com 507 Etherlink II 16 Bit Coax/TP | $279/299 |
| 3 Com 509 Etherlink III Coax/5Pk | $135/615 |
| 3 Com 509 Etherlink III 10BT/5Pk | $145/645 |
| 3 Com 579 EISA Coax/10 BT | $239 |
| NE 2000 Plus Combo/5 Pk | $136/582 |
| NE2000 Foyle Coax EISA | $725 |
| Asante Etherpack Coax/10 BT | $189 |

### TOKEN RING

| | |
|---|---|
| Intel Token Express 16/4-16 Bit ISA/MCA | $429/469 |
| SMC Token Ring Adapter 16/4-16 Bit | $345 |
| 3Com Tokenlink III 16/4-16 Bit ISA/EISA | $455/635 |
| IBM Token Ring Adap II | $289 |

### POCKET LAN ADAPTERS

| | |
|---|---|
| Advanced LAN Net Coax/10 AT | $145/155 |
| X/R Com Pocket Adapter III Coax/10BT | $274/279 |
| Pocket ENET III Combo | $325 |
| Pocket Token Ring Type 1/3 16MB PS | $559 |

### ARTISOFT

| | |
|---|---|
| AE-2/3 Lantastic Kit | $445/525 |
| AE-2/3 Lant Kit for Win | $499/575 |
| AE-2/3 16 bitAdapter | $195/231 |
| Z-2 Lite Kit 2 Stations | $94 |

### PCMCIA ADAPTERS

| | |
|---|---|
| IBM /Thomas Conrad/XIR Com | ..Available...... |

### ARCNET

| | |
|---|---|
| 16 Bit Star/Bus Combo | $64/74 |
| 4 Port Arcnet Passive Hub | $15 |
| 8 Port Coax Stackable Active Hub | $139 |

### CONCENTRATORS/ MAUs/HUBS w/SNMP

| | |
|---|---|
| Allied Telesis 8 Port/12 Port | $309/519 |
| Asante 8 Port Concentrator/12 Ports | $239/474 |
| Asante 1012 12 Port Hub | $835 |
| Asante 1701 Smart Hub 12 Ports/SNMP | $965 |
| D-Link 12 Port 10 BaseT | $495 |
| D-link DE-1500 w/SNMP | $875 |
| D-link K1032 32Port w/SNMP | $1199 |
| David Sys. ExpressNet 12 Port w/SNMP | $2545 |
| Intel EE 12 Port 10BT Hub Int w/Harmonica | $634 |
| Intel EE 12 Port Hub Int EISA w/Harmonica | $699 |
| SMC 8 Port Concentrator/12 Ports TP | $325/599 |
| Synoptics 2800 A 16 Port w/AVI | $699 |
| Synoptics 2803 16 Port w/AVI | $749 |
| Synoptics 2804 16 Port w/Fiber Optics | $951 |
| 3 Com Link Builder 3C621 12 Port | $729 |
| 3 Com Link Builder TR 3C510180/82 | $1751/3599 |

### BRIDGES

| | |
|---|---|
| Allied Telesis local Ethernet Bridge | $1645 |
| 3 Com 802C NetBuilder local think Ethernet | $3399 |
| 3Com 750 NetBuilder Token Ring local | $4714 |
| 3Com 5823C NetBuilder Remote | $5319 |
| Synoptics 3323S Ether Local w/AVI | $2353 |
| Synoptics 3522 Token Ring | $5319 |
| Novell Multiprotocol Router v 2.0 | $669 |

## NETWORKING

### NOVELL NETWARE

| | |
|---|---|
| Ver 2.2 5/10 User | $455/1050 |
| Ver 3.12 5/10/20/50 User | $570/1228/1736/2460 |
| Ver 3.12 100/250 User | $3355/6049 |

***NEW RELEASE VERSION 4.01***

| | |
|---|---|
| **Ver4.01 5/10 User** | **$812/1860** |
| **Ver4.01 25/50 User** | **$2178/3300** |
| **Ver4.01 100/250 User** | **$4469/5940** |
| **Ver4.01 500/1000 Us** | **$14823/26703** |
| | upgrades available |
| NOVELL-LITE | $69 |

**WINDOWS FOR WORKGROUP**

| | |
|---|---|
| ..ADD-ON STARTER KIT | 375 |
| ..ADD-ON USER KIT | $189 |
| ..ONLY SOFTWARE | $68 |

### NETWORK HARDWARE

**ETHERNET RG58 CABLES**

| | |
|---|---|
| Readymade w/Connectors 10'/25'/50' | $4/8/12 |
| Bulk 1000' SPOOL | $89 |
| Terminators / All Conn | $1.50 |

### PRINTER NETWORKING

| | |
|---|---|
| Intel Netport II Coax /10BT | $499 |
| Intel Netport II for Token Ring | $725 |
| PC Based Print Server 1 MB | $199 |
| PC Based Print Server 2MB | $269 |

### PRINTER SHARING

#### AUTO SWITCHES

| | |
|---|---|
| 2 Computers to 1 printer Electronics | $24 |
| 4 Computers to 1 printer Electronics | $40 |
| 2 Computers to 1 Printer Bi-directional | $45 |
| 4 Computers to 1 Printer Bi-directional | $61 |
| 2/4 Auto-switches Uni-directional | $25 / 39 |

#### ADVANCED SHARING

| | |
|---|---|
| PrinterLink Par Line Extender Centr(w/50' Cab) | $69 |
| PrinterLink Par Line Extender DB-25(w/50' Cab) | $69 |
| ModularLink Printer Net Transmitter DB-25(w/25'C) | $40 |
| ModularLink Printer Network Receiver Centr0 | $48 |
| ModularLink Printer Network Starter Kit | $106 |
| PrinterNET Printer Net Transmitter DB-25(w/25'C) | $69 |
| PrinterNET Printer Net Transmitter Centronics (w/25'C) | $69 |
| PrinterNET Printer Net Transmitter Centronics (w/25'C) | $163 |

### E-MAIL- SOLUTIONS

| | |
|---|---|
| CC:Mail DOS/Win | $199/325 |
| CC: Mail UNIX/OS2 Platform | $639/339 |
| CC:Mial Macintosh Platform | $335 |
| CC:Mail 10/25/100 user Pk | $229/549/2097 |
| CC:Mail Gateway v. 3.21 | $845 |
| CC:mail Remote/Router v. 4.0 | $195/849 |

### PEER-TO-PEER NETWORKS

**ASA 2 station starter kit** ***Includes:***

2 copies of Novell lite/lantastic DOS v 5.0
2 NE 2000C 16bit Ethernet 10BT/COAX Cards
2 50 OHM Terminators
1 25 FT Cable..........$249

### MICROSOFT

*Windows for WorkGroup*

| | |
|---|---|
| Add-on for Windows 3.1 soft only | $69 |
| Add-on User kit 1/2 user w/Win 3.1 | $145/275 |
| Add-on for Windows 3.1 soft only (5 user) | $265 |

## MAIN BRANCH

**ASA COMPUTERS, INC.**
2354 Calle Del Mundo
Santa Clara, CA 95054

Tel: [ 800] 732-5727
Local Tel: [408] 727-3678
Fax: [408] 988-0359

Hours: M to F 9AM - 6:30PM
Sat: 10AM - 4PM

## MIDWEST DISTR

Indianapolis, IN
The Computer Centre
Tel: [317] 291-9211
Fax: [317] 291-1482

## CA AFFILIATES

Pleasant Hill [sandalwdctr]
STI Computers
609 Gregory LN # 110
Tel: [510 ] 256-9938
Fax: [510] 256-9983

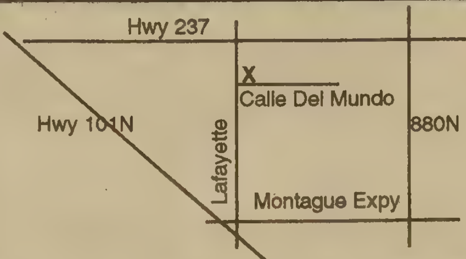
## OTHER AFFILIATES

Phoenix, AZ
AIKA SYSTEMS
Tel/Fax: [602] 443-3618

York, PA
ASA COMPUTERS, INC.
Tel/Fax: [717] 854-7473

Each Store is independantly owned; it is responsible for its own liabilities.

## DIRECTIONS TO MAIN BRANCH



## TERMS AND CONDITIONS

COD, FOB Santa Clara, CA. Credits terms are available on approval. Manufacturer's warranty on parts varies. Three years limited warranty on systems assembly labor only. Prices are subject to change. Prices marked with a "*" are on cash bassis only.

***Please call to check if we sell an item that may not be listed in this advertisement. We operate on Just-In-Time Inventory on many specialized items advertized here; please call regarding lead-time on these items.***

***Not Responsible for Typographical Errors***

# MICROMARKETPLACE

## REWARDS & PITFALLS

# The '90s Entreprene

## An Interview With Dick Shaffer Of Technologic Partners

In the personal computer industry, Dick Shaffer's Technologic Conferences are among the preeminent power spots. Venture capitalists, analysts, and assorted financial czars gather to hear dozens of CEOs hold forth on industry trends and make hopeful presentations to potential investors. Deals are made, alliances cemented, and the occasional company formed in the hallways.

In addition to the conferences, Shaffer's company, Technologic Partners, produces two investment-oriented newsletters: *ComputerLetter* and *Venture Finance.* The former focuses on business issues in computing and is aimed at a CEO-level readership. The latter tracks and analyzes trends in venture funding for the benefit of startup and existing companies seeking capital.

Shaffer founded Technologic Partners in 1984, after a fifteen-year stint at the *Wall Street Journal,* which he left as science and technology editor.

"I was a philosophy major," he recalls during a brief hiatus at the recent Network Outlook '93 conference. "What can you do when you come out of college—I knew thirteen different ways to prove the existence of God. It's hard to find honest work when that's all you know how to do."

I'm a comparative lit major myself, I admit.

"Or comparative lit!" he exclaims. "You could talk about Emma Bovary versus the Russian treatment of the same theme.

"So I started out in the newspaper business as a sports writer. I was a terrible sports writer. I ended up on the *Wall Street Journal* and was moved from one assignment to another, finally ended up writing about computers.

"You know, if you ask enough bright people enough questions, you eventually learn something. So I spent fifteen years asking very smart people questions about computers and other things."

The first issue of *ComputerLetter* came out in January 1985, and the first PC Outlook conference followed in December of the same year.

"I called a few friends in the PC industry, and said, 'If I can get an audience, will you come talk?' John Roach and Rod Canion and John Sculley and Bill Gates and all the guys I knew in the industry. They said okay.

"So then I called people and said, 'Hey, I've got Gates and Sculley and Canion and Roach and all these people talking; will you pay me to come hear them?' They said yeah.

"So I said, 'All right!' I charged $350, and I made $5000 on that conference.

### By Mary Eisenhart

ur

Photo: Michael Jay

This is okay! This is a business!"

Nine years later, he says, "the price is a little higher [by about a factor of five for this year's conference, slated for December 6–7 at Burlingame's Hyatt Regency]; the audience is a little bigger. We do a half-dozen conferences a year; topics vary depending upon what seems to be hot. They've all been pretty successful. Those that weren't successful, or as successful, we just killed them and didn't do them again."

**I asked a friend who goes to a lot of tycoonfests how he would position your conferences, Stewart Alsop's conferences, and Esther Dyson's conferences. He said, in essence: Stewart's a Washington boy, and he tends to run his conferences in the manner of Industry Politics. And Esther runs them as "let's get the people together and see what happens."**

**And yours, he says, are targeted fairly precisely at the investment community and looking at it from the business perspective. Would you say that's accurate?**

I'd say it's more or less accurate.

**Venture capitalists are pretty thick on the ground at these things.**

And investors.

When we looked at the business nearly ten years ago, Esther was doing her conferences, and she was doing a good job. I had no desire to compete head-on with Esther.

But she wasn't really focusing on business issues—she was mostly focusing on the industry, and getting people together, and creating interesting chemistry. Which is a great thing to do. I think all three of us depend on sort of the dinner party chemistry—if you can get the right people together, something interesting will happen.

I haven't been to her conferences in many years; I have never been to one of Stewart's, but they seem to be more industry issues, from what I understand. We try to focus on business issues.

Everything about Technologic is "How do you make money?" If we weren't basically interested in technology, we would be doing conferences on Japanese junk bonds or wax fruit or something.

Some of our audience comes from the investment community, depending upon the conference, but there's a very high level of industry participation at very senior levels. You'll see it at conferences, a great many chairman/president/CEO types, as opposed to senior marketing managers and customers.

I think the business focus is how we try to differentiate our conferences. Lots of suits. Almost all suits. All these middle-aged men in gray and blue suits, that's basically it. *[Laughs]*

***"I think the business focus is how we try to differentiate our conferences. Lots of suits. Almost all suits. All these middle-aged men in gray and blue suits, that's basically it."***

**So are your conferences of interest to sort of entrepreneurial garage types who are trying to connect with financing, or are they more for established companies to network?**

It's mostly for companies. Many of the companies here are small companies. They may not be the garage type—they may have a little bit of financing already, mostly because it's difficult to find those who have absolutely none. The private companies usually have at least one round of venture capital, and are looking for more. The faster you grow, the more money you need.

We also have large public companies making presentations—at this conference, for example, there's IBM, and Novell, and Sun, and Oracle, among the largest companies in the industry. And at the PC conference, if you look at the brochure that's out, you can see what happened at last year's PC conference: there was Gates, and Sculley, and Pfeiffer, and Grove, and Manzi—basically the most senior executives from the companies you want to hear from, all together in one place.

So while we try and bring all the important people together, our focus is really on how you make money.

**How do you decide what companies you want to invite to make presentations?**

It's kind of subjective. It's sort of like you deciding what's news. I hope I know it when I see it. We're looking for interesting companies.

**Interesting in terms of what?**

That their business either already is growing rapidly, or I think it will. So if the company has fallen on hard times—we review many companies for each conference. We look at who we think are possibilities to have a good business in the future.

**How do they come to your attention? Do they send you letters saying, "We'd like to come speak at your conference?"**

Some of them do. We get hordes of letters from PR firms telling us their client is wonderful—and some of them are.

Through *Venture Finance*, we also track a few thousand private companies—*Venture Finance* lists all investments made by venture capitalists in every field, four times a year. So we run long lists of who got money, what they're using it for, who the investors are. It's just a database. We track what the venture community is investing in.

Plus, twice a year, in the life sciences and the information sciences, we do a survey of companies and make our forecast as to what companies we think will be going public, and why. That's another cut on a similar database.

***"While we try and bring all the important people together, our focus is really on how you make money."***

Then in *Venture Finance* we have a section called Expansion Plans, which runs about fifteen to thirty companies a month, doing little profiles of companies that are looking for money.

So essentially we have a crew of people that's out beating the bushes all the time, looking for interesting young companies. We also track attendance at the conference, and if some company presents, and half a dozen people come to the first meeting and nobody comes to the second meeting, the chances that company will be invited back next year are not high.

**There's a significant showbiz element to this.**

Of course!

**So based on your extensive observations, what do you think are current and future hot growth areas?**

In the computer business at the moment, the hot growth areas are wherever Microsoft isn't. Microsoft dominates the desktop. Microsoft and Intel basically set the direction and the pace for desktop computing. Nobody would go into that business. Why would anybody do that? It'd be crazy to go into that business.

But there are other promising segments of the digital technology business where Microsoft and Intel are not yet dominant—although they're not stupid, they're focusing a lot of attention on that. Consumer computing, mobile computing, network computing, and information services.

In consumer computing, it's video games, the information highway, digital media, whatever you want to call that. Microsoft has about five hundred people working on that, but there are other, larger companies in that business that are far more important than Microsoft. Multibillion dollar companies, like Paramount-Viacom, or Time Warner. Huge international companies, all of whom need to get intellectual property from young startup companies. Michael Crichton made $23 million in the last two years. Two years before that he may have only made $5 million. And he's just one guy.

Or little production companies, like Spike Lee, for example, come out of nowhere. Large media companies know the value of getting intellectual property from small startups. That's a promising area—lots of opportunity in digital media, consumer computing.

In mobile computing, once again, there are some very large players involved. One of them is Microsoft. But there are other much bigger companies whose attitude toward cooperation is somewhat more open than Microsoft's. Regional telephone companies. AT&T. There's BellSouth. There's PacTel. There's Ericsson in Sweden. Fujitsu. There are a number of large international companies who are very interested in the area, and who either do deals with small companies, buy products of small companies, invest in small companies, acquire small companies...

So those are some fields that I think are important.

**The other day I was listening to a**

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**tape of a talk John Doerr [of leading venture capital firm Kleiner Perkins Caufield and Byers] gave last year. I'd be interested in your opinion of one thing he said.**

**He sees the day of the independent startup being just about over. He says, we're Kleiner Perkins, we're not financing garage guys nearly as much, and instead we're financing 3DOs, where we're one partner and some of the other partners are huge companies, and there's a promising technology area.**

> ***"In the computer business at the moment, the hot growth areas are wherever Microsoft isn't. Microsoft dominates the desktop. Microsoft and Intel basically set the direction and the pace for desktop computing. It'd be crazy to go into that business."***

**Do you see that as becoming the dominant trend, or is there still room for an independent company to get financing and get big?**

I think there's still room for individual companies to get financing and get big, but I'm hard pressed to cite a single example of that having happened in the recent past. Kleiner Perkins has been very aggressive in their pursuit of this idea of partnerships. They are a very forward-looking firm, not just in terms of thinking about technologies, but thinking about how to get money in and how to get money out. John started talking, five or six years ago at least, about his *zaibatsu* concept, of companies working together. I think he's absolutely right in many ways. And their work with AT&T demonstrates the way in which they're trying to make this concept work.

Not a lot of other firms have bought into that idea yet. And it remains to be seen how well that works. 3DO is in very early stages. Eo and GO, I don't think would go down on anybody's list as major successes yet. It may be that the investors got more money out of them when they were acquired by AT&T than they put into them, but I don't know that.

**Then you've got things like America Online, which is an incredible soup of investors, including Kleiner Perkins, and is now public and seems to be doing very well.**

Oh yeah, it's in a great position.

Companies like Kleiner Perkins don't need to have everything a hit. Kleiner Perkins has had its Dynabook [an ill-fated notebook computer company], and other firms too, that were big holes in the ground. But when you have a few big hits, you can make up for a few holes in the ground.

I think KP is leading the industry in thinking about ways to work with large companies, as opposed to just stealing a small engineering team from Intel and hoping you can build a company around it.

**Going back to what you were saying about opportunities in the intellectual property area, I was struck by something [T/Maker CEO] Heidi Roizen said at the conference last year—that T/Maker had shipped, fairly close together, a new version of WriteNow, and a fax clip art package called Fax Mania. And that Fax Mania was outselling WriteNow by a huge margin, and that therefore they were bailing out of the application business and devoting their resources to the content business.**

**Do you think this reflects the right direction for small companies to be going?**

I think there will be more and more content in the business. Look at where the opportunities are. In the last fifteen years there have been very few innovations in software applications. We had spreadsheets, relational databases, and desktop publishing, and that's really about it. Most everything else either builds on one of those or is a variation on their theme. How many databases do we need, or spreadsheets, or word processors?

The industry is saturated in that. And yet the market for variations on the spy novel, or variations on Boy Meets Girl, or Hometown Boy Does Good, Rags To Riches, whatever the fundamental theme is that you know from comparative lit—we keep selling books over and over, just changing the names and the locale. And that's the content business.

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You've read it before, they were just different names.

So I think Heidi is absolutely right, and more companies are discovering that.

Which raises new opportunities, because the kinds of people and companies who are good at writing computer programs, in my experience, haven't been very good at the creative side, the content part of it. Those who understand programming in the digital sense probably don't have a very good understanding of programming in the television sense. They're just different people.

**Last year on one of the mobile computing panels, after several discussions which came down to "Hell, we dunno where this is going," a woman from IBM finally said, "Look, if anybody knows where this is going, they're not up on a panel talking about it, they're out doing a startup." Somebody else on the same panel, I think, said, "We're back in 1977, folks. It's wide open."**

Yes.

**So what are the lessons that are useful to the people who are trying to build a business and succeed today?**

That the chances of success are remarkably small. Most new businesses fail. It's like the restaurant business. It's very easy to get into the restaurant business—everybody thinks they've got some wonderful recipes—and restaurants last a couple of years, max. Those that last that long.

The opportunity for starting software companies in mobile computing particularly is enormous. I'm absolutely convinced it will be a huge business. Not for a while yet.

There will be lots of companies that just disappear, not even footnotes in history. They will just vanish. When Compaq introduced its first computer, there were a dozen other companies that introduced products at about the same time and got the idea of being IBM compatible. And only one company got it right—to be compatible means compatible—not an improvement or a slight variation. Compaq was the only one that figured that out. All the others went broke.

In portables, there was Gavilan and half a dozen other companies that just didn't quite get it. Or companies that looked good for a while. Osborne—made the minimum acceptable machine. Kaypro—not a bad little company, but not especially well run. Just sort of disappeared from the face of the earth.

So there will be a lot of failures from this era.

There's also an enormous opportunity for startups. I've seen dozens of promising young companies in the mobile computing and communications area.

**Who do you see as the likely users of this technology? Eo's Alain Rossmann even says, "We're not exactly sure who's going to be using this for what, and every time we show the technology to someone, they all have a different idea." How do you go starting a business under those conditions? How do you address a customer who's hypothetical?**

I think if you can't personify your customer you have a serious business problem. There are many companies that can't do that, and I think most of them fail. Not all of them.

*"In consumer computing, it's video games, the information highway, digital media, whatever you want to call that. Microsoft has about five hundred people working on that, but there are other, larger companies in that business far more important than Microsoft."*

I don't think Steve Jobs and Steve Wozniak knew who their customer was. They were building their first machine for themselves. It was a cool idea. And their instinct was spot-on. It was a cool idea and they just *wanted one*. And we'll figure out what to do with it.

But most companies have to have a very specific kind of customer in mind. In mobile computing, a lot of companies don't know who that person is yet. They know that it's a "mobile professional," only because mobility's involved and by putting "professional" on it they know the person has enough money to buy it. And that's about the extent of it.

I think the same sorts of people who bought the first cellular telephones,

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- 170 MB Hard Disk
- SVGA Card
- 14" SVGA Monitor 1024x768
- IDE 2HD/2FD Controller
- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced Keyboard
- Mini Tower/Desktop Case
- High Resolution Mouse
- Internal Clock/Battery

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| 486DLC-33 | $849 |

## 386DX-40, SX/33 128K CACHE

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- 1 MB RAM 70ns
- 1.44 or 1.2 MB Floppy Drive
- 130 MB Hard Disk
- SVGA Card
- 14" SVGA Monitor 1024x768
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| Genoa VL 1 MB | 95 |
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| Pocket 144/144 Fax/Modem | 199 |

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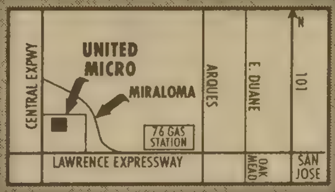

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| * ISA 486DX2-50 w/128K | $1,268 |
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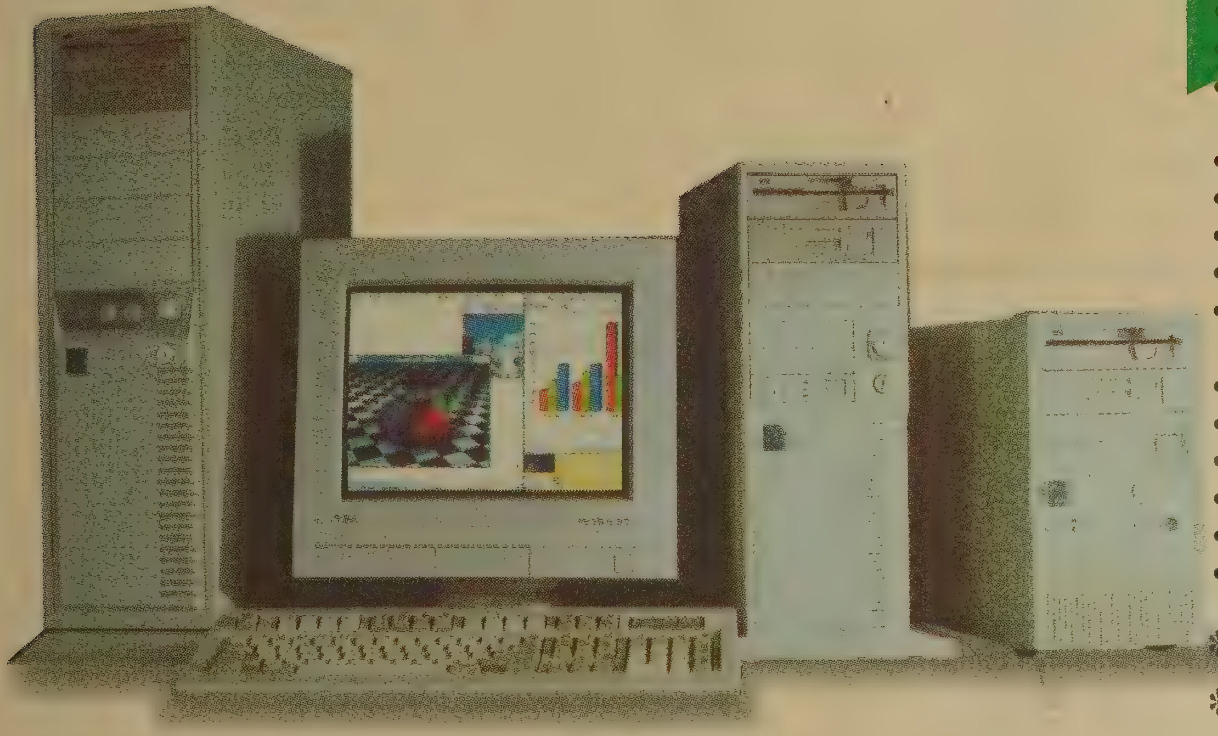

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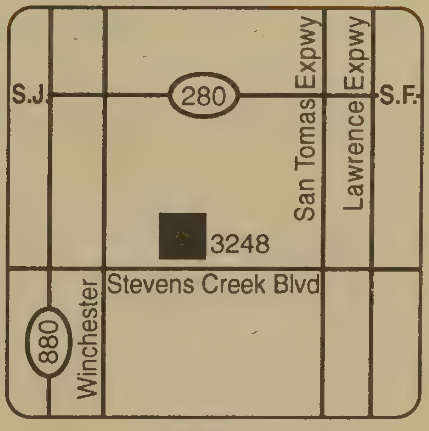

which were not large in number, the same sorts of people who bought the first pagers, are pretty good examples of the sort of market that has the money to pay for it and will use it.

I think it's going to be a huge market, but that it's going to grow a lot more slowly than some of the industry promoters have said. The cellular phone business has been around ten years in its present form, and there's still fewer than fifteen million users worldwide. Twelve million users in the US.

**I just got a beeper last week.**

Right, it's the same kind of thing. Think how long beepers have been around. It's the same phenomenon. But now that you can buy a simple beeper for a hundred bucks, and you can pay twenty dollars a month for service, it's gradually spreading.

*"Little production companies, like Spike Lee, for example, come out of nowhere. Large media companies know the value of getting intellectual property from small startups. That's a promising area—lots of opportunity in digital media, consumer computing."*

But there are pagers that'll cost you $350–400 to buy, and the service is a lot more than that. Some people carry those, because they want to stay in touch.

You can buy a cellular phone today for less than $100. There are also cellular phones that sell for nearly $1000. Who's the person who's spending $1000 for a cellular phone today? Who's the person who's spending $350 for a pager today? That's the person who's going to buy a mobile computer system, or a mobile device of some sort.

**At the other end of the spectrum, you say that consumer computing is a hot growth area. We've seen what happened the last few times people thought there was a huge consumer computer market. What's different now?**

A consumer computer, in my view, is not going to be perceived as a computer. I think a computer is essentially a business machine, an office machine, and most people don't need a computer, wouldn't know what to do with it if you gave it to them. So the mere fact that you can now get for $1000, or $1200, the sort of machine that would have cost you $10,000 five years ago isn't enough to make it compelling.

**Right. My parents keep asking "should I buy a computer?" and—**

For what? For what?

**They don't know, so I tell them they don't need it yet.**

You don't need one. If you don't know what you need it for, you don't need it.

**When PhotoCD gets transparent enough, maybe they'll need one.**

Ye-ah... but also, maybe just a shoebox with photos in it will do for a good long while.

PhotoCD is essentially a computer technology. It's a computer, but people think of it in terms of what it does. The digital technologies that have been most successful in the home have come in in disguise.

You give a student who graduates from high school—maybe you give them a PC if they're going off to college, or an electronic typewriter. Nobody gives them typewriters anymore. The typewriter has been digitized and it really is a word processor, but we call it a typewriter. The electronic keyboards that bands use, the synthesizers and so forth, are really digital sound systems, they're computers. But people call them electronic keyboards. The CD player is really a digital storage medium with a D to A converter on it, it's a computer.

**Microwave ovens!**

Microwave ovens have got computers in them.

We define them by what they do, rather than the technology they embody. We don't call a car an internal combustion engine, although that's what's inside it. We call it a car.

I think the computer is disappearing into our lives in the home, and that it will reemerge in an entertainment device, maybe a TV set—I'm not convinced that when there is a computer in a large percentage of American homes, in the dens and living rooms, that there will be an IBM or an Apple logo on it. Or that we will call it a computer. Maybe there'll be a Sony logo on it. Or a Nintendo logo on it.

Look at the game machines. Nintendo is a huge company, and so is Sega. Both of them use computer technology, and neither one of them sells what most people would identify as a computer.

**Right, and when Nintendo starts selling those Silicon Graphics boxes, they probably still won't be called computers.**

They still won't be called computers, 'cause you don't care. You don't want to know what's inside your VCR. You don't want to have to care about it. That's what a consumer product is.

And this industry, the computer industry, is not used to dealing with customers who buy things in blister packs, or machines that don't have reset buttons on them. They just don't know what consumers want.

**I remember reading years ago something William F. Buckley wrote that was essentially an ode to Heathkit. Heathkit was the greatest company in the world because they kept bringing in platoons of women with eighth-grade educations to test the products. Until those women could read the manuals and assemble the products flawlessly from the directions, the product wasn't ready to ship.**

*"How many databases do we need, or spreadsheets, or word processors? The industry is saturated in that. And yet the market for variations on the spy novel, or variations on Boy Meets Girl, or Hometown Boy Does Good, Rags To Riches—we keep selling books over and over, just changing the names and the locale. And that's the content business."*

**I wish that approach would filter into the computer industry; I think the world would get a lot better faster.**

*[Laughs]* It doesn't, though. I use products by companies that make me wonder, "Did any real person ever try to use this? Was this word processor ever given to a person who actually writes for a living? What on earth are some of these features for?"

**Where is the incentive to move from a typewriter to this?**

Exactly. And the industry still has a problem with setting expectations far higher than it can deliver.

I saw Pete Lewis's column in the *New York Sunday Times*, about talking to his computer. He had a marvelous line about talking to one of the new Macs—he says, "Talking with my computer is at about the level of Tarzan and Cheetah. You know, 'Cheetah! Open file!' 'No! *Bad* Cheetah! Wrong file! Open other file!'" *[Laughs]* Wonderful line.

**So there are a lot of people who think they've got great ideas and want to start companies; what advice do you have?**

I think the same motivation that Jobs and Wozniak had is still important. You should want it, you should care about it passionately. Somebody in the company needs to be the bearer of the flame, and somebody who's absolutely passionately convinced that the world is waiting for this product. Without that kind of drive and true believer spirit, you're just not going to make it through the trials that are really required for the success of a company.

Beginning a startup and seeing it through in the technology business will cost you most of your savings, cost you a lot of sleepless nights, may ruin your marriage, may jeopardize your child's education, probably will require a second mortgage on your house, and at the end of all that, you may become fabulously wealthy. But you're more likely to go broke.

Now who would sign up for something like that? Only a person who's absolutely convinced that they can beat the odds. And some people do.

So I think people need to go into it realizing that it's a huge risk, and that there may be a red Ferrari at the other end, but there probably won't be.

And people still do it anyway. When I left the *Wall Street Journal*, people thought, "You are absolutely crazy. Editor of one of the best newspapers in the world, biggest newspaper in

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| 3COM 3C579 32-bit Coax/5-Pack | 247/1,042 |
| INTEL ETHEREXPRESS 32-Bit EISA | 465 |
| EAGLE NE3200 32-Bit EISA CX & TP | 578 |
| EAGLE NE2/32C 32-Bit MC | 543 |

***ARCNET CARDS AVAILABLE. PLEASE CALL.***

### 10 Base-T Twisted Pair Ethernet

| | |
|---|---|
| MILAN Transceiver (AUI-BNC)/(AUI-RJ45) | 49/49 |
| 3COM 3C503/16TP ETHERLINK II/5-Pk | 184/800 |
| 3C507 ETHERLINK 16-bit TP/5-Pack | 340/1,561 |
| 3C509TP 16-bit/5-Pk/20-Pk | 122/550/2,075 |
| 3C509 COMBO/5-Pack | 155/700 |
| 3C523B 10 Base-T MC/5-Pack | 352/1,583 |
| INTEL TP/MCA/5-Pk/20-Pk | 115/186/515/1,967 |
| COMBO 16-Bit/5-Pack | 131/622 |
| COMBO (20-Pack) | 2,399 |
| FlashC 16-Bit/5-Pack/20-Pack | 152/726/2,670 |
| SMC ELITE ULTRA 16TP/6-Pk/24Pk | 112/632/2,371 |
| ELITE ULTRA COMBO/6-Pk/24-Pk | 132/751/2,845 |
| ELITE 10T/A 10 BaseT MCA | 198 |
| ELITE 32T Dual Segment EISA TP | 657 |
| 3COM 3C579 EISA 10BaseT/5-Pack | 247/1,042 |

### Token Ring

| | |
|---|---|
| 3COM Tokenlink III 16/4 | 479 |
| 3COM Tokenlink III 16/4 10 Pack | 4,498 |
| INTEL Token Express 16/4 | 460 |
| MADGE 16/4 Smart Ringnode/10-Pack | 613/5,219 |
| MADGE 16/4 EISA Ringnode/5Pk | 853/3,758 |
| PROTEON 16/4 | 438 |
| PROTEON 16/4 EISA | 494 |
| SMC Token Ring Adapter 16/4 | 361 |
| SMC Token Ring 16/4 12-Pack | 4,103 |

***See next section for Token Ring Pocket Adapters.***

### PCMCIA/Parallel Port Adapters

| | |
|---|---|
| IBM Credit Card Ethernet Adapter | 296 |
| Credit Card 10BaseT Adapter | 296 |
| Credit Card Token Ring 16/4 Adapter | 628 |
| Credit Card 3270 Adapter | 543 |
| THOMAS CONRAD Ethernet | 299 |
| Credit Card 10 BaseT | 299 |
| Credit Card 16/4 Token Ring | 619 |
| XIRCOM Pocket Adapter III BNC or 10BaseT | 305 |
| Pocket ENET III COMBO(BNC & 10BaseT) | 330 |
| Pocket Token Ring TYPE1/TYPE3 | 580 |
| 3270 Adapter for parallel port | 439 |
| Credit Card Ethernet Adapter | 290 |
| Credit Card 10BaseT Adapter | 290 |
| Credit Card Combo BNC/10BT | 330 |

### Wireless Adapters

| | |
|---|---|
| ALPS RadioLan Parallel Port Adapter | 444 |
| NCR Wireless 16-Bit Lan Adapter | 733 |
| Wireless PS/2 Lan Adapter | 641 |
| Wireless PCMCIA Adapter (New Product) | CALL |
| Security ROM | 90 |
| Proxim RangeLAN/ISA 16-bit | 418 |
| RangeLAN PCMCIA Adapter | 514 |
| RangeLAN Parallel Port Adapter | 514 |

### MacIntosh Products

| | |
|---|---|
| ASANTE MC+IIE64 Coax/MAC II | 158 |
| MC+30iE64 Coax/IIsi & SE/30 | 158 |
| Mini EN/SCPB Thick/Thin/10BT for Powerbook | 340 |
| Mini EN/SC10TPB 10BaseT for Powerbook | 296 |
| FriendlyNet FTNIISI IIS,SE/30 Coax or 10BT | 248 |
| FriendlyNet FTNII for NuBus Coax or 10BT | 213 |
| Asante Lite Nubus-TN | 132 |
| Asante Lite Nubus-10T | 132 |
| Asante Lite LC-TN | 132 |
| Asante Lite LC-10T | 132 |
| CAYMAN Gatorbox Enet router, APL,AUI/BNC | 2,025 |
| DAYNA DaynaPort E/II for II,IIX Coax or 10BT | 158 |
| DaynaPort SCSI/Link Coax or 10BT | 288 |
| DaynaPort SCSI/Link-3 Combo | 352 |
| DP SCSI/Link PB for Powerbooks Coax or 10BT | 311 |
| DP SCSI/Link PB3 Combo Coax/10BT/AUI | 361 |
| EtherPrint T-Plus Print Server | 433 |
| PathFinder Router (LocalTalk to EtherTalk) | 651 |

***We carry the full line of adapters from Asante, Dayna, & Farallon.***

### Concentrators & MAUs

| | |
|---|---|
| 3COM Linkbuilder TP/12 | 426 |
| ASANTE 8-Port Concentrator/12-Ports | 265/526 |
| ALLIED TELESIS 8 Port/12 Port | 316/560 |
| EXOS/MICRODYNE 16 ports | 621 |
| INTEL Int. TPE 12 port Hub ISA/EISA | 565/641 |
| INTEL Hub Expansion Board (12 add'l ports) | 490 |
| SYNOPTICS 2800A 16 port w/ AUI | 734 |
| SMC 3608TP 8-Port Concentrator/12-Ports | 356/646 |
| SMC Elite 4000C Token Ring Mau 8-port | 723 |
| SMC Elite 4000C Token Ring Mau 16-port | 1,153 |
| MADGE 8 Station Token Ring Hub | 490 |
| 3COM Linkbuilder TR 3C510180 | 1,914 |
| Linkbuilder TR 3C510182 | 3,107 |
| Linkbuilder TR 3C510181 | 3,682 |

### SNMP Manageable Concentrators

| | |
|---|---|
| ASANTE 1012 12 ports Hub | 925 |
| ASANTE 1701 12 Ports w/SNMP module | 1,065 |
| ASANTE View for Windows (In-Band/Out-of-Band) | 710 |
| ALLIED TELESIS 12 ports w/SNMP module | 1,186 |
| 3COM Linkbuilder FMS TP Hub | 685 |
| FMS Isoview Software | 459 |
| FMS Management Module | 640 |
| FMS Isoview Management Option | 249 |
| DAVID SYSTEMS ExpressNet 12-port w/SNMP | 1,248 |
| NETWORTH 3/6/10 Slot Chassis | 642/836/1,933 |
| 12 Port 10BaseT Module/Smart Module | 1,234/1,791 |
| 24 Port 10BaseT Module/Smart Module | 1,546/2,191 |
| Tri-Segment Module 24 ports | 1,546 |
| Tri-Segment Module w/ Mgmt 24 ports | 2,191 |
| Tri-Segment Stackable 24 ports | 1,230 |
| Tri-Segment Stackable 24 ports w/ SNMP | 1,932 |
| Tri-Segment Management module (STMDB) | 836 |
| Token Ring Module | 1,159 |
| NetWare App. Engine w/o NetWare Runtime | 3,026 |
| NetWare App. Engine w/ NetWare Runtime | 3,783 |
| Hubview SNMP mgmt. software (Windows) | 950 |
| SYNOPTICS 2803 16 ports w/AUI | 808 |
| 2804 16 ports w/Fiber Optics | 1,177 |
| 2814-04 16 ports | 2,135 |
| 2814-05 16 ports | 1,693 |
| 3000N 12 Slot Chassis | 1,814 |
| 3308A 12 Port module | 1,182 |
| 3314A-03 Mgmt. module w/ basic SNMP | 2,064 |
| 3314A-04 Mgmt. module w/ advance SNMP | 3,266 |

### Repeaters

| | |
|---|---|
| IMC LANextender BNC/BNC-limited to 1 per lan | 325 |
| Dual Port Ethernet Repeater BNC/BNC | 461 |
| Dual Port Repeater AUI/Fiber Optics | 540 |
| Dual Port Repeater TP/Fiber Optics | 540 |
| Quad Port Repeater (4 BNC) | 626 |
| TUTANKHAMON Long Distance Repeater. Link 1500' using one pair of TP cable, alternative to fiber, Requires 1 Pair | 1,446 |
| XL600+ 600' Repeater | 500 |
| Dual Port Repeater BNC/BNC | 264 |
| Quad Port Repeater (4 BNC) | 390 |
| Octo Port Repeater (8 BNC) | 720 |

### Tape Backup Solutions

| | |
|---|---|
| CHEYENNE ARCserve VAP 5-10/ANY | 449/769 |
| ARCserve NLM V5.0 5/10/25 users | 256/512/770 |
| ARCserve NLM V5.0 50/100/250 users | 960/1,225/1494 |
| ARCserve Solo | 127 |
| COLORADO DJ-10 120MB Int. Tape Drive | 161 |
| DJ-20 250MB Int. Tape Drive | 192 |
| JTC-10 120MB TRAKKER Para. Port Tape Drive | 325 |
| JTC-20 250MB TRAKKER Para. Port Tape Drive | 375 |
| Power Tape 25-2 GB SCSI Tape Drive w/Ctrl | 1,055 |
| Power Tape Ext-25 2 GB SCSI Tape Drive w/Ctrl. | 1,251 |
| Power Tape 50-4 GB SCSI Tape Drive w/Ctrl | 1,664 |
| Power Tape Ext 50-4 GB SCSI Tape Drive w/Ctrl. | 1,870 |
| CONNER (formerly Maynard/Archive/Cypher/Irwin) | |
| Backup Exec for DOS/NetWare NLM | 129/270 |
| Conner 7251QI 500 MB | 520 |
| Conner 6000DLT 48MB/Min | 3,882 |
| EXABYTE 4MM 4-8GB Workstation Based | 1,436 |
| 4MM 4-8GB Server Based (NetWare 2.2) from | 1,759 |
| 4MM 4-8GB Server Based (NetWare 3.11) from | 1,571 |
| INTEL StorageExpress EL Ext. 2.2GB | 5,961 |
| INTEL StorageExpress XL Ext. 5GB | 9,464 |

### Uninterruptible Power Supplies

| | |
|---|---|
| APC BACK-UPS 250/400/450 | 140/175/210 |
| BACK-UPS 600/900/1250 | 289/410/547 |
| POWERCHUTE PLUS for Novell/Unix | 99/149 |
| SMART-UPS 400/600/600RM/900 | 310/375/470/589 |
| SMART-UPS 1250/1250RM/2000RM | 736/869/1,376 |
| NSSI IPS/AI 450/600/800/1200 | 330/414/559/812 |
| Lansafe II for NetWare | 135 |
| Net-UPS 450/600 for Novell/Unix | 398/471 |
| Net-UPS 800/1200 for Novell/Unix | 619/839 |

### Bridges & CSU/DSU

| | |
|---|---|
| ALLIED TELESIS Local Ethernet Bridge | 1,449 |
| ALLIED TELESIS Local Ethernet Bridge w/ SNMP | 1,739 |
| NOVELL MultiProtocol Router 2.0 | 721 |
| 3COM NetBuilder Local Ethernet (Thick) | 3,637 |
| NetBuilder Token Ring | 4,736 |
| NetBuilder Remote (Thick/Thin) | 5,263 |
| INTELLICOM Enet Local, 2AUI,2BNC,SNMP | 1,300 |
| MADGE 16/4 Token Ring Bridge | 2,051 |
| PROTEON DNX 300i Token Ring to Token Ring | 4,162 |
| DNX 300i Token Ring to Ethernet | 4,162 |
| DNX 300i Token Ring to Dual Series | 4,919 |
| RETIX 4850 Remote Bridge | 3,575 |
| SYNOPTICS 3323S Enet Local Bridge w/AUI | 2,874 |
| SYNOPTICS 3522 Token Ring Bridge | 5,677 |
| UDS DDS/MR1 RS232 or v.35 w/interface | 589 |

### Network Modems/Comm. Servers

| | |
|---|---|
| ARTISOFT Articom Modem Sharing | 236 |
| ARTISOFT Central Station | 431 |
| BRIGHTWORKS NetRemote+(100users) | 359 |
| MICROTEST Ethernet LANModem | 1,439 |
| MICROTEST Token Ring LANModem | 2,050 |
| NOVELL NetWare Access Services v1.3 | 1,735 |
| NACS 2/8/16/32 ports | 431/1,300/2,170/3,468 |
| SHIVA NET MODEM/E 9600 BNC | 1,567 |
| Lanrover 4E/8E ports w/o modems | 1,843/2,650 |
| TELEBIT ModemMizer Software | 227 |
| Asyn.Comm.Server 8/16 ports | 2,875/4,313 |
| U.S. ROBOTICS Modem Sharing Kit V32BIS | 532 |
| Dual Modem Sharing Kit | 937 |
| Shared Access CommServ | 1,495 |

### Network Printing Solutions

| | |
|---|---|
| CASTELLE Jetpress BNC/10Base-T | 381 |
| Jetpress MIO for HP4 | 419 |
| Lanpress BNC (2 PAR/2SER) | 662 |
| DIGITAL PROD. NetPrint/150E 3 Parallel Ports | 638 |
| EAGLE NPE400 1 LPT, BNC & 10BT | 362 |
| INTEL Netport II for Ethernet | 396 |
| Netport II for 10BaseT | 410 |
| Netport II for Token Ring | 572 |
| NetportExpress XL for BNC/10BaseT | 469 |
| NetportExpress XL for Token Ring | CALL |
| MILAN Fastport 1P/1S, BNC/10BT | 459 |
| XIRCOM Print Server 1 LPT, BNC or 10BT | 315 |
| XIRCOM TR Print Server | 580 |

### Network Fax Solutions

| | |
|---|---|
| CASTELLE FaxPress 1 or 2 Line,BNC or TR | 1,526 |
| CHEYENNE FaxServe VAP/NLM | 655 |
| OPTUS FACSys NetWare Fax Server Software | 720 |
| INTEL Satisfaxtion Modem 200/400 | 329/447 |
| Net Satisfaxtion for 8 fax boards (20 users) | 649 |
| Net Satisfaxtion (1000 users) | 1,040 |
| DELRINA Winfax Pro for Networks | CALL |

### Network CD-ROM

| | |
|---|---|
| MICROTEST DiscPort (Network SCSI CDROMs) | 550 |
| MERIDIAN CD-Net for DOS (10 Users) | 467 |
| CD-Net for NetWare (NLM-10 Users) | 467 |
| CD-Net for NetWare (100 Users) | 938 |
| CD-Net for NetWare (250 Users) | 1,445 |
| MICRO DESIGN SCSI Express for NetWare, MDI | 564 |
| SCSI Express for NW 2.X | 470 |
| SCSI Express for NW3.11, Non-MDI(20 Users) | 977 |
| SCSI Express for NW3.11, Non-MDI(250 Users) | 1,429 |
| Ext. CD-Rom LaserBank 600CD | 665 |
| Int. CD-Rom LaserBank 600CD | 552 |
| ISA SCSI Adapter for 600CD | 348 |
| EISA SCSI Adapter for 600CD | 564 |
| SCSI Express w/ 1 CDROM w/o CTRL | 1,229 |
| SCSI Express w/ 2 CDROM w/o CTRL | 1,898 |
| SCSI Express w/ 3 CDROM w/o CTRL | 2,606 |
| SCSI Express w/ 2x2 CDROM w/o CTRL | 3,276 |

### RAID Solutions

| | |
|---|---|
| CHANTAL Paragon Software | 640 |
| COREL RAID (Software Only) | 716 |
| CORE INT. Micro Array Int. 510MB w/o CTRL | 4,181 |
| Micro Array 2XBOX w/ 1 510MB w/o CTRL | 4,693 |
| Micro Array 2XBOX w/ 2 510MB w/o CTRL | 8,876 |
| Micro Array Ext. 842MB | 5,981 |
| Micro Array Ext. 1684MB | 11,453 |
| ULTRASTOR 124F EISA(Controller Only) | 1,777 |
| MICROPOLIS Radion 680 3 340MB | 5,299 |
| Radion 1340 3 670MB | 6,448 |
| Radion 2060 3 1.03GB | 8,267 |
| Radion 2680 3 1.34GB | 9,547 |
| Radion 3500 3 1.75GB | 10,494 |
| Radion 4200 3 2.1GB | 13,834 |
| Radion ISA SCSI Adapter and Cable Kit | 418 |
| Radion EISA SCSI Adapter and Cable Kit | 729 |

### Cable Testers & Supplies

| | |
|---|---|
| RG58 & RG62 Rachet BNC Crimper | 75 |
| RJ-45 Crimper | 75 |
| RG58 Ethernet BNC-Crimp (100 pak) | 125 |
| RG62 Arcnet BNC-Crimp (100 pak) | 125 |
| RJ45 10 BaseT Connectors (100 pak) | 40 |
| 10Base-T Cable (1000' min) LV3/LV 5 | 100/200 |
| BELDEN PVC RG58 or RG62 Cable (1000' min) | 175 |
| PLENUM RG58 or RG62 Cable (1000' min) | 350 |
| MICROTEST Quick Scanner | 607 |
| MT310 TP/COAX Scanner | 1,142 |
| MT350 NEXT Scanner | 2,525 |

### E-Mail

| | |
|---|---|
| cc:MAIL DOS Platform V4.0 | 214 |
| OS/2 Platform | 359 |
| WINDOWS Platform | 359 |
| MacIntosh Platform | 359 |
| Unix Platform (New Product) | 648 |
| 10 USERS license/25 Users/100 Users | 250/612/2,387 |
| Gateway v3.21 (MHS) | 960 |
| MICROSOFT PC Mail v3.0 Server + 10 Users | 479 |
| PC Mail 5/20/100 Users | 273/930/3,633 |
| MHS Gateway/PROFS | 708/3,405 |
| SMTP/X400 Gateway | 3,405/3,405 |
| FAX Gateway | 1,419 |

### Novell Software

| | |
|---|---|
| UnixWare Personal Edition | 185 |
| Lan WorkPlace for DOS Single/10 Users | 290/1,445 |
| Lan WorkGroup-5/10/20 Users | 1,125/1,866/2,613 |
| Lan WorkPlace for MacIntosh (Single User) | 290 |
| NetWare for Mac 5/20/100/200 | 347/626/1,397/2,096 |

### Network Utilities

| | |
|---|---|
| BRIGHTWORKS Utilities for NetWare | 359 |
| CHEYENNE Monitrix Network Mgmt. | 583 |
| Inoculan (20/250 workstations) | 326/655 |
| Utils for NetWare 286/386 | 257 |
| CENTRAL POINT Anti-Virus NLM for NetWare 3.11 | 890 |
| DIRECT ACCESS Network Menu | 366 |
| FRYE NetWare Management v1.1 | 339 |
| Early Warning System v1.1 | 339 |
| Lan Directory v1.1 | 339 |
| INTEL LanDesk Manager v 1.5 (*New Version*) | 1,070 |
| SYMANTEC Norton Admin. 5/10/25/50/100 | 247/438 |
| SABER Lan Workstation 1st node/add 1 | 159/39 |
| MICROTEST Lan Assist | 210 |
| Map Assist | 355 |
| NOVELL LanAnalyzer for Windows v2.0 | 925 |
| ONTRACK NetUtils 3.0 | 234 |
| POWERCORE Network Scheduler 3 5 Users | 275 |
| Network Scheduler 3 DOS/WIN 25 Users | 830 |
| Network Scheduler 3 DOS ONLY 5/25 Users | 176/485 |
| SYNERGY SOLUTIONS Modem Assist Plus | 355 |
| XTREE XTNET File Manager/Serv. Ext. | 387/100 |
| XTREE Tools for networks | 543 |

### Peer-to-Peer Networking

| | |
|---|---|
| ARTISOFT Lantastic 5.0 A/I | 79 |
| AE-2 Adapter 16-bit Ethernet Adapter | 217 |
| Noderunner Starter Kit 5.0 for DOS | 477 |
| Noderunner Starter Kit for Windows | 550 |
| Noderunner/C Coax 16-Bit Adapter | 188 |
| Noderunner/A Combo 16-Bit Adapter | 238 |
| Lantastic 5.0 for NetWare | 296 |
| Lantastic for Mac | 578 |
| Lantastic A/I for Win/6 /12 users | 139/540/1030 |
| Lantastic 5.0 for TCP/IP | 177 |
| Etherbasket AE-2 Adapters (12 pack) | 2,172 |
| Etherbasket AE-3 Adapters (12 pack) | 2,429 |
| NOVELL NetWare Lite 1.1 | 79 |
| NetWare Lite coax starter kit (2 Stations) | 420 |
| NetWare Lite Add-On (1 Additional Station) | 210 |
| XIRCOM Network Simplicity Starter Pack | 427 |
| Network Simplicity Add-On Kit | 196 |
| MICROSOFT Windows for Workgroup | |
| Add-On Starter Kit 2 User/1 User | 291/146 |
| Add-On for Windows 3.1 Software Only | 69 |
| Add-On for Windows 3.1 (5 pack) | 276 |

### Microsoft Windows NT

| | |
|---|---|
| Single User | 341 |
| Single License (Requires Server) | 293 |
| Advanced Server | 1,031 |
| Advanced Server License | 879 |

### Optical Storage/WORM

| | |
|---|---|
| PINNACLE MICRO Int. PMO 130PC EXT.128MB | 1,872 |
| PMO-650I INT.128MB,19ms w/CTRL | 3,008 |
| PMO-1300AT EXT. 2 650MB, 19ms, w/CTRL | 5,802 |
| Ext. PMO-650E EXT. 650MB, 19ms w/CTRL | 3,105 |
| Ext. MFO-650 EXT.15ms,WORM w/CTRL | 3,362 |
| RCD-202 Recordable CD MAKER | 3,864 |

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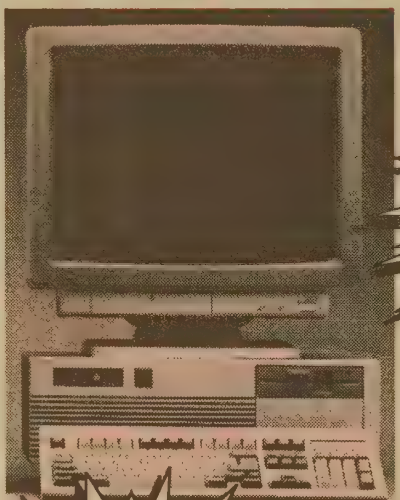

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|---|---|---|---|
| 486DX2-66 VLB w/128K | $950 | $1175 | $1206 |
| 486DX-50 VLB w/128K | 895 | 1120 | 1151 |
| 486DX-33 VLB w/128K | 750 | 975 | 1006 |
| 486DX2-66 EISA/VLB W/256K | 1040 | 1265 | 1296 |
| 486-50 EISA/VLB W/256K | 985 | 1210 | 1241 |
| 486-33 EISA/VLB W/256K | 845 | 1070 | 1101 |
| 486DX2-66 ISA W/128K | 925 | 1150 | 1181 |
| 486-50 ISA W/128K | 875 | 1100 | 1131 |
| 486SLC2-50 IBM MB W/64K | 655 | 880 | 911 |
| 486-33 ISA W/128K | 740 | 965 | 996 |
| 486SX-25 W/128K | 561 | 786 | 817 |
| 386-40 W/128K | 521 | 746 | 777 |
| 386SX-33 | 475 | 700 | 731 |

### BASIC SYSTEMS INCLUDE

- Motherboard & CPU
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- Internal Clock/Calendar
- Baby Case & Power Supply
- 101 Enhanced Keyboard

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## SYSTEM UPGRADES

### VIDEO CARDS & MONITORS

| | |
|---|---|
| ATI Ultra Pro VLB w/2MB | $317 |
| ATI Ultra Pro w/2MB | 315 |
| ATI Ultra Plus w/1MB | 205 |
| ATI Ultra w/1MB w/Mouse | 162 |
| DIAMOND Viper VLB w/2MB | 362 |
| DIAMOND Speed Star Pro VLB w/1MB | 108 |
| DIAMOND Stealth Pro VLB w/2MB | 320 |
| DIAMOND Stealth 24 w/1MB (ISA/VLB) | 153 |
| ORCHID ProDesigner IIS (EISA) w /1MB Hi-Color | 142 |
| ORCHID Celsius VLB w/1MB | 218 |
| ORCHID Fahrenheit VLB w/1MB | 138 |
| ORCHID Fahrenheit 1280 Plus w/1MB | 138 |
| TSENG Lab VGA w/1MB | 72 |
| Cirrus Logic w/1MB Windows Accelerator | 56 |
| Cirrus Logic VLB w/1MB | 89 |
| NEC 3FGE /4FGE 15" 1024x768 .28 | 585/685 |
| NEC 5FGE 17" 1024x768 .28 | 1075 |
| SONY 1430/1730 | 565/960 |
| VIEWSONIC 4E/6E | 260/280 |
| VIEWSONIC +7 | 855 |
| VIEWSONIC 15/17 | 465/1025 |
| VIEWSONIC 20/21 | 1630/1875 |

### CONTROLLER

| | |
|---|---|
| IDE 2FD/2HD | $11 |
| IDE 2FD/2HD with 2S/1P/1G | 13 |
| Promise DC-200 IDE Cache Controller 0-16MB | 94 |
| Promise DC-4030 VLB/Cache Controller 0-16MB | 130 |
| Adaptec SCSI 1542 CK w/Kit (ISA) | 232 |
| Adaptec SCSI 2742TK (EISA) | 356 |
| Adaptec SCSI VLB 2842 | 290 |
| VLB IDE Controller 2FD/2HD with 2S/1P/1G | 36 |

### HARD DRIVES

| | |
|---|---|
| 120MB 16ms IDE | 158 |
| 170MB 16ms IDE | 168 |
| 212MB 13ms IDE | 190 |
| 250MB 14ms IDE | 203 |
| 340MB 14ms IDE | 260 |
| 540MB 12ms IDE/SCSI | 4 |

90/520

### CASES

| | |
|---|---|
| Tower Case full size, 6 drives, 285wps | $103 |
| Tower Case medium size, 6 drives, 230wps | 79 |
| Tower Case mini size, 5 drive, 230wps | 50 |

### MISCELLANEOUS

| | |
|---|---|
| AT I/O (2S/1P/1G) | $11 |
| Serial Card/ Parallel Card | 11 |
| Fax Modem (9600 Fax, 2400 Modem) | 40 |
| Fax Modem (14,400 Fax, 14,400 Modem) | 126 |
| 2400 Int. Modem | 26 |
| Serial Mouse | 10 |
| Auto Data Switch 4 Computers to 1 Printer | 36 |
| Auto Data Switch 2 Computers to 1 Printer | 22 |
| Power Center | 14 |
| Power Strip | 6 |
| Colorado Tape Backup 250MB | 162 |
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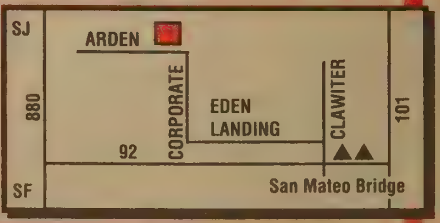

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> *"Somebody in the company needs to be the bearer of the flame, absolutely passionately convinced that the world is waiting for this product. Without that kind of drive and true believer spirit, you're just not going to make it through the trials that are really required for the success of a company."*

America, and you're quitting to do *what?"*

That was the reaction almost uniformly on the East Coast. On the West Coast, all my friends said, "Hey, it's about time!" *[Laughs]*

**This brings up a question about the differences in the computer business culture on the East Coast and the West Coast. Can you generalize about that—are there more startups on the West Coast than elsewhere?**

I think there are far more startups on the West Coast, through the sheer happenstance, I think, of the fact that Shockley came from Palo Alto, and so when he started his business he moved it out here, and a lot of bright people, including the founders of Intel, worked for him.

**And Bill-And-Dave before him...**

And there was a good school at Stanford, and Terman at Stanford encouraging that sort of thing. So there's a whole attitude that's built up around the Bay Area. People at Berkeley who thought about RISC machines and UNIX.

One of the things you need to start companies is not just money—it takes money, but there's money on both coasts. In fact, much of the money that the venture capitalists based here invest comes from the East Coast. It's pension fund money, or the Kodak employees' money, or the State of Ohio Teachers' Trust or something, that gets reinvested through venture capital firms out here.

It takes money, it takes board members, it takes talented engineers, it takes bankers and real estate agents willing to take a flyer and give a lease to a small company that's got no credit, it takes a work force. And a lot of that's based right here in the Bay Area. There's an incredible ferment.

The attitude is very different. In the East, if you leave a company to do something on your own and you fail, you are A Failure. On the West Coast, if you try something and fail, then you have failed, but you are not A Failure. You dust yourself off and you start again. You have at it again. That's really much healthier.

**Practically anybody who's running a successful company now, you can point to serious debacles in their past.**

Serious failures in the past. But they didn't say, "Oh my, my life is ruined. I've lost my house and I'm never going to amount to anything." They say, "Well, I blew that one. Yeah, I lost a lot of money, some of mine and more of other people's. All right, that didn't work. Let's try again." And some of those people make it work, finally. It's that optimism, that belief that you can do it, that keeps driving people.

And I don't find that much back East. I really don't. They tend to be much more conservative, much more risk-averse.

**And yet there have been wildly successful startups back there, Lotus being a case in point.**

Yep. But some of the people who started companies in both places really had nothing to lose. I mean, Mitch Kapor was an ex-radio announcer and meditation teacher. What did he have to lose? Nothing! Ken Olsen, when he started DEC. He didn't have anything.

Those are the rebels. The rebels are always those who have nothing to lose in the first place. Maybe it's because there's more money back East and people back East tend to have more money to lose and take fewer chances. Sure, there have been startups, always will be.

Also, I think the climate is much more hostile. I can't imagine starting a company in many cities in the East. I happened to be living in New York, and I enjoy being in New York, but otherwise I would never have started a company in New York City. There are much more hospitable environments.

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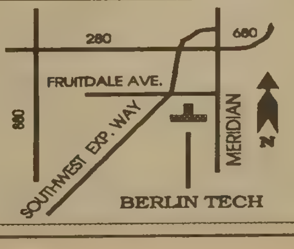

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> *"Many of the companies in Silicon Valley focus so much on how to do it technically, and the elegance of the technical solution, that they forget that the real audience, especially for digital media, doesn't give a damn how it works. They just want to be entertained and informed."*

**Do you see other areas emerging as good business climates for startups? You hear about Colorado, you hear about Austin...**

I think Seattle will be a big startup area. There's not the venture capital community up there, but there are hundreds of bright people being attracted to Microsoft. Not all of them will stay. Many people who have been made rich by working for Microsoft will leave the company or become interested in investing in other companies. So I think Seattle will become an increasingly important area.

Colorado—hard to tell. I don't know why there's not more venture capital activity in Colorado. I personally hope it doesn't catch on—I love the Rocky Mountains and I hope very few other people go there! *[Laughs]*

There are a few people starting companies in places like Boulder and Austin. It's possible, these days.

**But you still think this is the happening place.**

I think this is still *the* place. Many companies start in the Bay Area just because all the ingredients are right here.

Why would somebody move to LA if they weren't interested in video and film? But if you're in film, you've got to at least have a little bungalow in LA to go to once in a while.

If you're in publishing, you've got to be in New York. That's where publishing and broadcasting are based. And the computer business, and the industry that finances it, are basically based here. And in New York, there's a lot of financial activity in New York.

**We did an interview with Neal Stephenson a few issues ago, in which he said it was very interesting to watch the Southern California movie culture and the Northern California entrepreneurial nerd culture come together, and that there were going to be some interesting dissonances before they get their act together.**

I think there are three industries trying to do deals with each other that really don't understand each other. There's Silicon Valley, New York, and LA, and they couldn't be more different places.

**At the cable convention, they had a panel with Jim Clark and a bunch of cable guys, and it was a total ships-passing-in-the-night discussion. The cable guys were asking all these questions that the computer guys dealt with ten years ago, and they didn't exactly get it.**

On the other hand, Silicon Valley doesn't get it about much of what's going to be needed for success in the future media.

Whether you call it digital media or multimedia, it's not about technology. It really has nothing to do with technology, any more than the movie industry is about cameras and film and reflectivity in screens. That's not what it's about.

And many of the companies in Silicon Valley focus so much on how to do it technically, and the elegance of the technical solution, that they forget that the real audience, especially for digital media, doesn't give a damn how it works. They just want to be entertained and informed.

**They want the point-and-shoot camera.**

The point-and-shoot camera, or the VCR, or they want the hit movie.

People in Silicon Valley may be fascinated to know how the dinosaurs were created in *Jurassic Park*, but *Jurassic Park* has sold $600 million worth of tickets, mostly to people who don't care how it was done. They just want to be terrified.

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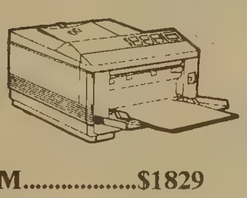

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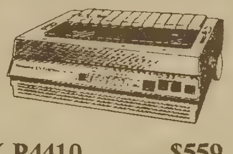

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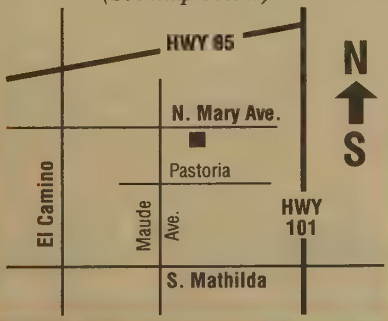

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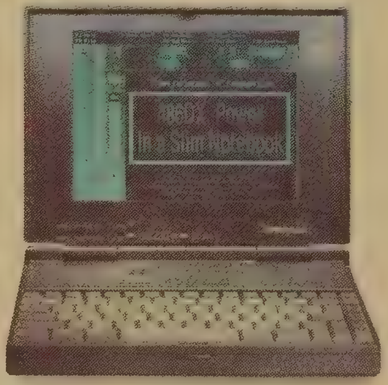

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# Exit: Sand Hill Road

## *A Crash Course In Dealing With The Venture Capital Community, By An Entrepreneur Who's Been There*

**BY JAMIE DINKELACKER**

For all the people who want VC money, few would actually be willing to trade places with the venture capitalists. They may be some of the hardest working—and most frazzled—people I've met in the business world. VCs make their living betting on the future, often using other people's money. Prognostication is always risky business. And the social dynamics inside a startup company only further muddy already-murky waters.

Last summer, only days after I joined a startup, it was spun off by the big broom of the parent company's new management. Surprise! My job now was to write a business plan and "go get funding."

I had only lived in California for a few months. I'm comfortable building businesses; I love managing, raising capital and the like, but the Silicon Valley Venture Capital Circus was new to me.

After months of visiting VCs, seeking their blessings and cash, I've had time to reflect on it all. Although the company never did receive VC investment, I do understand the reasons; were I in the VCs' shoes, I now see that I would've probably made the same decision. Nevertheless, it was a positive and beneficial experience, an education in and of itself.

## BUY MY DREAM, PLEASE

During this process, I had the opportunity to speak with numerous, diverse people throughout Silicon Valley regarding their experiences with—and perceptions of—venture capital firms. It was also a time to gain insight about the entrepreneurs' own companies. Some remarks that follow may seem a bit strong, yet these extremes are presented to illuminate the common ground and frequent experience resting between them.

One essential theme emerged: many new entrepreneurs just wanted the VCs to buy into the dream of their startup, irrespective of market realities, on-board marketing savvy, track record of meeting deadlines, cost to reach market, the business cycle, aesthetics of the product, or temperament of the company. Although themselves a bit lacking in business sophistication, some entrepreneurs were quick to fault VCs for failing to see the "true value" of their enterprise, or to castigate the VCs interest in short-term profit, or focus on the blessed IPO. Remarks like these were typical of individuals who had yet to build a profitable enterprise. Numerous engineers mocked VCs as being technically naive, but to me it seemed that technical people were just as often naive regarding business.

> *"Venture Capitalists sleep like babies—they rest for two hours and wake up crying."*
>
> *—Paul Saffo*

Blinders on founders contribute, I suspect, to their difficulty receiving funding. Various people, unaware of the nuances of business and organizational development, had a ready, condescending retort to all criticism. They had their own strong view of "what makes sense," though it was often irrelevant to building a profitable enterprise. They would joke about VCs not seeing "the big picture" or "understanding reality."

Some startups are dominated by people who can't meet deadlines—whether for a meeting, a ship date, or market launch. They will be late for their own funerals and are thus a big risk, period. Quick to dismiss innocent questions from potential investors as reflecting a lack of understanding, they portend a customer service nightmare. When they belittle management, marketing, PR, advertising, and the "bean counters," they show a lack of basic business understanding. When they're quick to give blanket ridicule of competitors who are already making money, they don't show a grasp of reality.

If your money were to be invested by a VC firm, would you want clowns like these to have your cash?

Such companies want VC money, but often without other benefits that the investors can bring to the enterprise, notably administrative insight, market savvy, financial prudence, and a real-world basis for risk management. One important lesson for these entrepreneurs is to recognize that everything comes at a price—if somebody else's money is involved, it's only reasonable to expect them to try to protect it.

Much of business is art, not science. In business, "judgment" often cannot be computed. When a decision comes down to a "gut call," personal dynamics count for a lot. And the nuances of human behavior, performance, and trust mean even more.

Companies seeking funds must distinguish among their dreams, wishes, and vision. A huge chasm separates what could be done, what should be done, and what actually will be done. A product that promises to be all things to all people, especially in this day of niche markets and relentless competition, will likely not be much for anybody. Probably it will fail because it'll be late, and miss the marketing window of opportunity. As a sobering blow to the perfectionists, someone else will step in with the classic 80% solution and enjoy a huge bite of the market share.

Most VC firms I met seemed to be interested in making realistic market assessments, and to pick the best opportunities

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*Dr. Jamie Dinkelacker focuses on information services, communication technologies, and the marketing of related innovations. He lives on the peninsula in Los Altos with two basenjis, and can be reached via JAMIE@NETCOM.COM.*

from those presented to them. They were acutely aware of time sensitivity of both products and capital, and they focused on reasonable growth expectations of the industry, market, company, and product. It'd be wise for some entrepreneurs to do likewise.

## "YOU GO FIRST," OR, "PROGNOSTICATION IS RISKY BUSINESS"

At the other extreme of this marriage to be made in Hades are the venture capital firms themselves. One friend characterizes them as "penguins," because none wants to be the first to jump in. More than one firm told me: "Call us when somebody else has put money in the deal." Risk abounds and it's easiest to swallow when it's spread around.

There's also a question regarding the extent that some VCs depend on "analysts." Analysts' knowledge and prognostications haven't the most sterling accuracy records. A regular reading of the business pages suggests that for every strategy the analysts condemn, one succeeds, and for every winner they pick, a quick ride down the tube is happening to another.

I ran a media marketing research company for over a decade, and one lesson came through clearly: the best information attainable is timely, with an alarmingly short half-life, and it is woefully incomplete. It's in the nature of dynamic business. It's just not plausible to fully predict the scope of social factors at play in any market.

While trends can be discerned, envisioning their impact on distinct market segments and specific companies is considerably more difficult. Social change is a ponderous and somewhat entropic process. VCs realize that a company that's betting on a significant change in human/consumer behavior is the longest shot on the darkest horse.

All this risk hides in the elusive search for Return on Investment. After all, why else should a VC put somebody else's money into a venture? VCs supposedly reflect "smart money," but they have their own track record of backing dogs that just won't hunt. Is this teaching them to pick winners or just avoid losers?

It takes massive patience to deal with many VCs because of their tendency to schedule their world so tightly. It becomes the classic case of "hurry up and wait." It can be very difficult to get on their calendar, but not too difficult to get bumped off. It's also hard to keep their attention for long; their attention commonly wanders or they are subject to numerous interruptions.

Many VCs I met seemed challenged to come to a timely decision. Of course, partner meetings are necessary, but sometimes it would take weeks for someone to decide to "pass for now." Back at the startup, hopes are running high and each day the "pass" isn't communicated or made clear, the startup management is in limbo; this can have a deleterious impact on focusing attention and deploying resources. It would be much better to get the news more quickly.

Nevertheless, it's important to keep in mind that the VCs do, in fact, have many proposals competing for their time and attention. And without a doubt the skills (and personality) to run a business are often very different from those required to conceive, create, and engineer a new product. Financial success results more from the way the business is run than from the intrinsic qualities of the new product. And without a doubt, financial success is paramount to the VCs and those whose money they invest. They tend to bet on people more often than ideas, and that is probably good business.

A huge chasm separates what could be done, what should be done, and what actually will be done.

## KEY OBSERVATIONS

One thing truly stands out from this experience: discussions with VCs certainly brought clarity to the process. They have real-world time frames and real dollar perspectives. They had a way of cutting through the theoretical haze as would a laser scalpel. Their pragmatism was a breath of fresh air, but I'm a pragmatist at heart.

I found it significant that not a single question was ever asked that shouldn't have been. In fact, most of their questions are just the ones that many individuals seeking funding should ask themselves. In short, these come down to (roughly paraphrased): (1) what makes you so special; (2) why will this (plan, product, company) work; (3) what makes you think you can run a business; (4) where have you gone for alliances; (5) what specifically are you looking for; (6) when will you make it to market; (7) who are your key competitors today and tomorrow; (8) what level of risk is on the owners' shoulders; (9) can you identify the advantages and disadvantages of your approach?

Even the harshest questions were presented in a "gentlemanly" manner (every presentation I made was to men). The VCs were discreet, did not ask for unreasonable spreadsheets or cosmic analyses, and when they made their decisions, were very clear in stating their reasons.

Some VCs raised very important points regarding the distribution of equity within a startup. Legitimate criticisms were raised about startups that cavalierly toss stock around as if it were Monopoly Money. This key role of the long-term equity picture seems not fully understood by some entrepreneurs: Some give far too much stock to too many people; other's don't give enough. Yet others create option streams that only reward the faith of the true believers who never say a negative word.

One VC told me that if more time was spent on product development and marketing planning instead of discussions of options and equity, the companies would probably be much further ahead.

It's also notable that those people whose companies had successful venture deals tended to ask me questions, while those who hadn't were quick to give me advice. So, having not made a deal with the VCs, I can give some advice.

•Recognize the value of what you're getting. It's an education about business, expectations of return from an economic standpoint relatively untainted by personalities, corporate religion, or wide-eyed technology belief.

•Have realistic expectations of how far you can take anyone from A to B in the allotted time. It's a short presentation; package your message and deliver it well. If you can't convey the essence of the idea to a VC in thirty seconds, how could you deliver it to the marketplace?

•Appreciate the exposure to these wealth drivers of Silicon Valley. If you do well, you'll see them again.

•Keep in mind that organizational snafus are more common than technical breakthroughs. Put yourself in their shoes and do a realistic assessment of your company's personnel and personalities. Remember the old adage that manufacturing without marketing equals scrap. What are your plans for keeping customers happy and coming back? Think about it today.

•Be ready to deliver. ■

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# CASE HISTORY: Semaphore Communications

## *Xerox-funded Startup Addresses Need For Secure Communications*

**BY MARY EISENHART**

"Years ago, if venture capitalists would take on ten investments, seven or eight might fail, and one, two, or three would succeed. But those that succeeded would be wild, and more than make up for the ones they lost.

"As the high-tech industry matures, and in today's economy in general, venture capitalists seem to want less risk, which in many cases means later stage investments. They don't have the wildly successful ones that they used to, and they have to make sure that the majority of their investments work out."

So says Charles Hart, president and CEO of Santa Clara-based Semaphore Communications, a three-year-old startup that recently began shipping its first products. Characteristically for these risk-averse times, Semaphore began its existence with a proven technology and the support of a large corporation—in this case, in the form of investment from Xerox Technology Ventures (see Issue #86), a venture capital firm created by Xerox to nurture promising in-house concepts that didn't fit the parent company's own strategy.

Explains Hart, a twenty-five year industry veteran brought on board to manage the company, "A company called Tracor Labs was being paid to develop an encryption device for Xerox called the Xerox Encryption Unit. It was really destined for the military and the government market.

"The fellows who were involved in this original development decided to leave and start a new company, to approach the commercial marketplace with a related technology. They went to Xerox Technology Ventures to see about getting some funding, because Xerox had been involved in this other product and they felt that they knew something about the technology. They agreed to do so, and began working on a device. They spent two and a half years in development. We've been shipping a product for about four or five months in a market that is targeting the commercial market for encryption and other related services."

The founders saw opportunity in the emerging market for secure corporate communications as businesses developed a growing need for fast global enterprise-wide data transfer and moved from private systems to commercial service providers. "They felt that large corporations would migrate in this direction, but they also needed to protect the information as it was being commingled with other companies' data."

However, it wasn't enough for the encryption technology to be secure—it also had to be affordable, easy to use, and harmonious with existing standards and platforms, from Mac to mainframe.

Semaphore's Network Security System is a hardware-software combination which uses both DES (Data Encryption Standard) and RSA algorithms to protect and authenticate data, and a fast RISC chip to speed encryption and decryption. (For more on these technologies, see Issue #106). It's also considerably more efficient and less pricey than its military/government counterpart—says Hart, "It's a very high-powered, very fast device that right now is encrypting over six thousand 64-bit packets per second. That's in contrast to the device which is being sold to the government, at approximately three hundred packets per second. In addition it has a lot more flexibility in that it can be managed over the network. It can transmit or communicate with other encryption devices rather than being hardwired on one line to another encryption unit.
It's also probably about half the price."

After only a few months of shipping product, Semaphore has an impressive customer list that includes McCaw Cellular, Microsoft, Texas Instruments, and Silicon Graphics; in the global market, it has customers in Australia, the UK, and Switzerland. It's also involved in OEM relationships with AT&T and IBM.

Despite its well-defined and highly receptive market, Semaphore is hampered by a somewhat unusual liability in the global market—government regulation. Hart explains, "Because our products use the DES encryption chip, we are treated as a supplier under the Munitions Act, which means we have to have ITARs to ship outside the US, and in doing so we're restricted to selling these products to US-based companies located outside the US, financial institutions such as banks, and friendly governments.

"Our global competitiveness has definitely been impeded by this. We have not been able to compete on several big bids outside the US because of the restriction on the DES technology, whereas other companies outside the US are bidding DES technology and are able to supply the same or similar technology. It's a restriction, not being able to compete on a global basis when the nature of our business is global. We have a problem with that in the short term."

From both competitive and technical standpoints, Hart views with some concern the Clipper encryption technology now being proposed as a standard in Washington. "Today the specifications for the chip as we know it really meet the needs for voice encryption—not today's need for data encryption. It definitely does not address those needs moving forward over the next several years. We feel that from a technology performance standpoint it just does not work for what we're trying to accomplish, which is high-speed packet encryption over global networks.

"We don't think it meets the needs of the commercial market today in terms of performance, and it also doesn't meet the needs of being able to sell this technology outside of the United States. Other governments know that it has a trapdoor, and that the keys are being held by the US government."

In general, Hart says, a successful business today must deal with far more complexity than the startups of ten years ago. "Today we have to locate new channels of distribution around the world, where companies and distributors can deliver instant customer gratification in a cost-effective way.

"Also, penetrating today's market requires an involvement of teamwork, one in which management, employees, customers, suppliers and government all work together. It's the technology of communication that is enabling the globalization of business and driving it—we now know what technologies are available, what products are available, what are the price points, almost on an instantaneous basis around the world. Business globalization continues to accelerate as communication advances, to draw the world closer to instantaneous dissemination of knowledge and information.

"Product life-cycles are so much shorter than they used to be that we really have to listen to the marketplace in order to be able to design and develop the products." (Semaphore Communications Corporation, 408/980-7750.) ■

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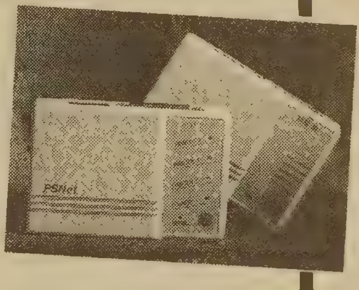

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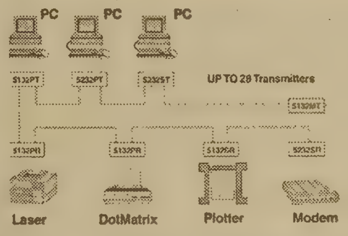

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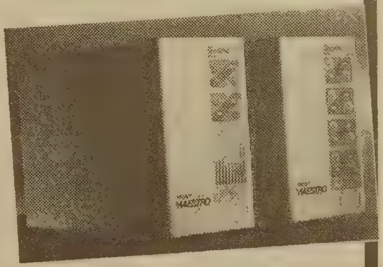

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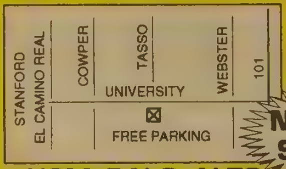

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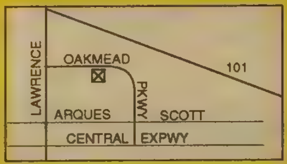

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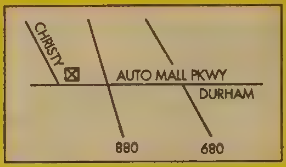

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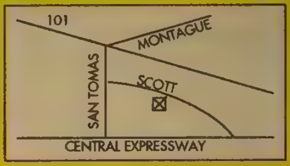

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# OS/2's CONFIG.SYS File

## *A Formidable Challenge*

**BY FABIAN PASCAL**

As an object-oriented operating system "of the future," OS/2 should not have carried forward such an anachronism as the CONFIG.SYS file. At the very least, some friendly user interface to it would have been warranted (see Resources for such an utility). As Listing 1 shows, the default file created by the OS/2 installation program on my system is even longer, and probably more baffling to the average user, than the DOS counterpart.

In general you should not mess with the contents of this file unless there is a very clear and good reason for it. Unfortunately, there are quite a few of those, and you'll frequently have to go by trial and error. Nevertheless, a basic understanding of CONFIG.SYS may help with saving memory, maximizing performance, and avoiding hardware problems. But while some improvements can be made, the meaning, configuration, and behavior of some statements remain a mystery.

Although some aspects are common to all installations, both the default and custom contents of the CONFIG.SYS file vary with each user's specific circumstances (e.g. hardware, whether WINOS2 or network features are installed, and so on). A backup copy of the default CONFIG.SYS file is stored by OS/2 in the \OS2\INSTALL directory, should you need to recover it.

Unlike DOS, which processes each statement as it reads it, OS/2 first reads all the statements, then processes them in accordance with its own priorities. This means that, with a few exceptions, the order of the statements in the file is unimportant. The installation program could, therefore, generate a sequence of statements which is logical and easier to understand but, unfortunately, it does not.

Listing 2 is a rearranged version of my default file, with statements grouped functionally, and briefly described.

### CUSTOMIZING THE CONFIG.SYS

Following is an explanation of the groups and of some nonobvious statements, and my cleanup and customization, the result of which is shown in Listing 3. I recommend that you REMark out (rather than delete) statements you do not need now, but may need later; and use lower case for any changes or additions, to distinguish them visually from the defaults.

BASEDEV statements load the base devices that are necessary for the system to be able to boot: drivers for the hard and floppy disk drives, and attached printer. All base device drivers are in the \OS2 directory, where the bootup process looks for them (there are no paths in BASEDEV statements). The driver for my specific DPT SCSI adapter (DPT20XX.ADD) comes with (and was installed by) OS/2.

Another basic hardware driver is the video one (the system will boot without it, but you won't see anything on screen). When I installed OS/2 I selected the 8514/A video driver built into OS/2. This generated the last five statements in Listing 1. But last month I mentioned upping the resolution from 8514/A's 1024 x 768 to 1280 x 1024, by substituting an ATI beta driver for my Ultra Graphics Pro video card. Its installation program inserts four new statements at the beginning of CONFIG.SYS (see Listing 3), and deletes two of the 8514/A statements (see below). The nonbase DEVICE statements do allow paths, and note that I chose to collect all hardware drivers in the \DRIVERS subdirectory created by the OS/2 installation.

While DOS has only one file system, FAT, OS/2 supports other Installable File Systems (IFS) in addition to it. One that comes with OS/2 is the High Performance File System (HPFS), and the IFS= statement installs it. By default OS/2 caches HPFS drives (in my case G:) within a cache size of 512KB, and with a Cache RECord Length (CRECL) of 4KB. Under most circumstances you should leave this alone. But with a 4MB worth of hardware caching by my DPT SCSI adapter, I opted to save the 512KB of RAM by deactivating the OS/2 cache. The AUTOCHECK parameter runs CHKDSK before each bootup, to detect any problems that might have been left by prior system use. As we shall see, such problems are quite possible in OS/2, and you won't always be able to run CHKDSK while the system is running (as in DOS), so the option is handy.

The IFS statement is inserted even if you do not choose to install HPFS, in which case it it can be REMark out, to save the RAM.

Like Windows, OS/2 requires .INI files—two of them, OS2SYS.INI and OS2.INI—to run. The system and applications use them to store information (such as colors, installed devices, system objects and their desktop positions, etc.). The INI files in OS/2 are not, however, ASCII as in Windows, but binary, and thus are not accessible and comprehensible to users. This raises some critical issues (and causes some problems) that require a separate discussion. For now, just remember that the two statements simply point the system to the two files.

The next group of statements load the programs for, and set the proper operation of the Work Place Shell. Note that the SET AUTOSTART statement contains CONNECTIONS even when no network facilities are installed, so I deleted that. But do not delete anything else here, or you won't be able to open folders or see the list of running tasks. I have also added the SET RESTARTOBJECTS statement and selected, from several options, the one that instructs the system to start, at bootup, only the programs in the Startup folder (otherwise, the default is to start all tasks that were active at the last shutdown).

Following are statements involving the command interface available for OS/2 windowed or full screen sessions. CMD.EXE is the OS/2 counterpart to DOS's COMMAND.COM, and SET PROMPT has the same function as in DOS. SETting KEYS ON allows previous command recalls. I have also added an undocumented SET DIRCMD command which customizes the display for the DIR command.

There are several types of PATH statements in OS/2. LIBPATH is for Dynamic Link Libraries (.DLL). Since I will be storing each application with its DLLs in its own directory, the DLLs are automatically searched there by the .; at the start of the LIBPATH statement. I therefore deleted the APPS subdirectory and added the \DRIVERS subdirectory, where the ATI video driver resides with its DLL. The SET PATH statement is equivalent to the DOS PATH state-

*Copyright © 1993 by Fabian Pascal. All rights reserved. Fabian Pascal is a San Francisco independent consultant, teacher, and writer specializing in relational database management, OS/2, and office and portable computing. An industry analyst, he teaches seminars, consults, and has published extensively. He is author of* SQL And Relational Basics *(M&T Books, 1991) and* Understanding Relational Databases *(John Wiley, 1993) He can be reached on MCI Mail (FPascal), CompuServe (73677,3306), and at 415-776-5184 (fax/voice).*

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### FLOPPY DRIVES

| | |
|---|---|
| Teac 1.2MB 5.25" | $45 |
| Teac 1.44MB 3.5" | 39 |

### MISCELLANEOUS

| | |
|---|---|
| 387SX25/16 Math Co | $49/39 |
| 387DX-40/33 Math Co | 55/49 |
| MS mouse (OEM) | 40 |
| Mouse (Ledgen) | 11 |
| Mouse (Keen/Agile) | 9 |
| Logitech MouseMan (OEM) | 40 |
| Power Center | 15 |
| TV Tuner | 139 |
| Gallant Sound Card SC6000/SC5000/SC4000 | 149/119/89 |
| Sound Pro Speakers | 19 |

### CD ROM

| | |
|---|---|
| Sony CDU31A | $165 |
| Mitsumi | 165 |

### KEYBOARDS

| | |
|---|---|
| 101 Enhanced | $18 |
| Maxiswitch | 29 |
| Keytronic | 30 |

### MODEM

| | |
|---|---|
| 2400 Baud Internal | $25 |
| 9600/2400 Fax/Modem | 45 |
| 9600 Modem External | 139 |
| 14,400 Fax/Modem Int. | 139 |

### MOTHERBOARDS & CPU

| | |
|---|---|
| 286-12/16 | $30/40 |
| 386SX-25/33/40 | 60/70/80 |
| 386DX-20 | 79 |
| 386DX-33 64K | 110 |
| 386DX-40 64K | 115 |
| 486SX-25/33 (CYRIX) | 119/139 |
| 486SX-25 NC | 139 |
| 486SX-25 64K | 179 |
| 486DX-33 64K | 345 |
| 486DX2-50 64K | 389 |
| 486DX-50 64K | 469 |
| 486DX2-66 64K | 555 |

### TAPE DRIVES

| | |
|---|---|
| 120 MB Colorado | $139 |
| 250 MB Colorado | 169 |
| 250 MB Archive | 145 |
| 120 MB/250 MB Tape | 20/23 |

### MONITORS

| | |
|---|---|
| 12"/14" Mono (refurbished) | $65/85 |
| 12"/14" Mono (Sealine) | $65/85 |
| 14" Mono VGA | 99 |
| 14" SVGA (.39) | 189 |
| 14" SVGA (.28) | 229 |
| 14" Non-Int SVGA | 259 |
| 14" Microscan 3E+ | 329 |
| 15" Microscan 4F | 429 |

### HARD DISK

| | |
|---|---|
| 40 MB Conner | $119 |
| 80 MB Conner | 149 |
| 120 MB Conner/Maxtor | 159 |
| 127 MB Quantum SCSI | 149 |
| 170 MB W.D./Conner | 169 |
| 245 MB Maxtor/Conner | 229 |
| 340 MB Maxtor/Conner | 269 |
| 540 MB Conner | 539 |

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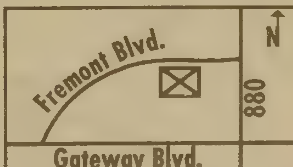

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ment for programs (note that OS/2 includes WINOS2 directories even if you don't install it, so I deleted them). DPATH is the path for data (I deleted the APPS and WINOS2 directories for the same reasons).

OS/2 generates an inactive DELDIR statement for \DELETE directories where OS/2 stores deleted files for recovery with the UNDELETE command. You should activate this statement and set such a directory on each drive/partition that you believe you'll need to UNDELETE files. I kept the EPATH to the system editor, and the paths to the Master Help Index and the Command Reference, but deleted those to the Tutorial and Glossary. I deleted the SET IPF statement which, as it turns out, is relevant only for Far Eastern languages keyboard support.

The following group of commands involve mostly hardware performance and multitasking. The default 30 BUFFERS is usually appropriate, unless you have a memory deficiency, in which case you should reduce the number. DISKCACHE is the FAT equivalent to the /CACHE option for HPFS. It defaults to a cache size of 512KB; LW (Lazy Write, deferred writing to disk); and AUTOCHECK (here abbreviated to AC, don't ask me why) for the boot drive only. I would have liked to deactivate this cache too, but I wanted the AC option (which I extended to all FAT drives), and the statement requires a minimal size of 64KB (which is a waste!).

The PRINTMONBUFS command allocates a RAM buffer of 134KB for each of the three printer ports (LPT1,LPT2,LPT3). But if not all ports are used, it is possible to save memory by setting the buffers for the unused ports to 0. I use only LPT1 so I transferred the RAM from the other two to it, setting it to 402KB. IOPL=YES instructs the system to allow all applications that need it direct access to the hardware.

PRIORITY_DISK_IO=YES gives the foreground running task priority access to the hard disk. MAXWAIT instructs OS/2 not to let a background task wait more than three seconds before being given access to the processor. MEMMAN tells the system to provide virtual memory with DLL protection, by swapping its content to the hard disk if necessary, and the SWAPPATH sets the path and size for SWAPPER.DAT, the file to which such swapping is done. The default path is \OS2\SYSTEM, but for both safety and performance it is preferable to store the swapping file on a fast, preferably different physical drive with HPFS. The file is created with an initial size when the system boots, and may grow as necessary when the system and applications need more memory than physically available. OS/2 sets the initial size (the second parameter, don't ask me why) based on the amount of memory it finds on the system (2MB with my 12MB of RAM). And limits the growth to 2MB under the total available space. Normally you should not change this, but if the swapping gets much larger than the initial size (which slows performance down), it is an indication that additional memory is a good idea.

Next are some system and hardware setup commands. Most are similar to the DOS environment, including drivers loaded by DEVICE statements. TESTCFG.SYS is a testing driver used by the Selective Install facility, which adds or modifies the hardware configuration. The two SET statements are those deleted by ATI display driver installation (see above; I restored them but REMarked them out). The next two DEVICE statements load the OS/2 serial mouse driver (the default is COM1) and mouse pointer. Next the OS/2 serial port driver COM.SYS is loaded (I customized it for a COM3 serial port at IRQ12, see my first column). The PCMCIA is relevant for laptops, and can be deleted for desktops.

All following statements involve the virtual DOS environment. The first two are OS/2 commands. PROTECTONLY=NO and the DOS.SYS device driver are required for the DOS emulation to run. The rest are DOS commands, some of which are equivalent to their regular DOS counterparts. I increased FILES from the default of 20 to 40. Note that these DOS commands are global: they affect all DOS sessions. As we shall see, each DOS session has its own individual settings which can override the CONFIG.SYS commands. For example, you can save memory by setting the RMSIZE for a specific DOS session to less than 640K, with the global CONFIG.SYS RMSIZE setting all other sessions to 640KB. The DEVICE statements load virtual device drivers (names preceded by a V) that are necessary to emulate a virtual DOS environment under OS/2. VCOM.SYS must follow COM.SYS, and VEMM.SYS must precede VXMS.SYS. If you don't have a CD-ROM drive, REMark out the VCDROM.SYS statement.

Note: One of my DOS applications would not work with the V8514A driver installed, so I REMarked it out. ■

*(Thanks to Sam Detweiler from IBM for help with the series in general, and with this article in particular; I also relied on a file posted by Rick Meigs on CompuServe, which contains more detailed information on the statements.)*

## LISTING 1 (OS/2 DEFAULT)
## LISTING 1

```
IFS=D:\OS2\HPFS.IFS /CACHE:512 /CRECL:4
   /AUTOCHECK:G
PROTSHELL=D:\OS2\PMSHELL.EXE
SET USER_INI=D:\OS2\OS2.INI
SET SYSTEM_INI=D:\OS2\OS2SYS.INI
SET OS2_SHELL=D:\OS2\CMD.EXE
SET AUTOSTART=PROGRAMS,TASKLIST,FOLDERS,
   CONNECTIONS
SET RUNWORKPLACE=D:\OS2\PMSHELL.EXE
SET COMSPEC=D:\OS2\CMD.EXE
LIBPATH=.;D:\OS2\DLL;D:\OS2\MDOS;D:\;D:\OS2\APPS\
   DLL;
SET PATH=D:\OS2;D:\OS2\SYSTEM;w:\OS2\MDOS\
   WINOS2;D:\OS2\INSTALL;D:\;D:\OS2\MDOS;D:\OS2\
   APPS;
SET DPATH=D:\OS2;D:\OS2\SYSTEM;w:\OS2\MDOS\
   WINOS2;D:\OS2\INSTALL;D:\;D:\OS2\BITMAP;D:\OS
   2\MDOS;D:\OS2\APPS;
SET PROMPT=$i[$p]
SET HELP=D:\OS2\HELP;D:\OS2\HELP\TUTORIAL;
SET GLOSSARY=D:\OS2\HELP\GLOSS;
SET IPF_KEYS=SBCS
PRIORITY_DISK_IO=YES
FILES=20
DEVICE=D:\OS2\TESTCFG.SYS
DEVICE=D:\OS2\DOS.SYS
DEVICE=D:\OS2\PMDD.SYS
BUFFERS=30
IOPL=YES
DISKCACHE=512,LW,AC:D
MAXWAIT=3
MEMMAN=SWAP,PROTECT
SWAPPATH=E:\OS2\SYSTEM 2048 2048
BREAK=OFF
THREADS=256
PRINTMONBUFSIZE=134,134,134
COUNTRY=001,D:\OS2\SYSTEM\COUNTRY.SYS
SET KEYS=ON
REM SET DELDIR=C:\DELETE,512;D:\DELETE,512;E:\
   DELETE,512;F:\DELETE,512;G:\DELETE,512;
BASEDEV=PRINT01.SYS
BASEDEV=IBM1FLPY.ADD
BASEDEV=OS2DASD.DMD
SET BOOKSHELF=D:\OS2\BOOK
PROTECTONLY=NO
SHELL=D:\OS2\MDOS\COMMAND.COM D:\OS2\MDOS
FCBS=16,8
RMSIZE=640
DEVICE=D:\OS2\MDOS\VEMM.SYS
DOS=LOW,NOUMB
DEVICE=D:\OS2\MDOS\VDPX.SYS
DEVICE=D:\OS2\MDOS\VXMS.SYS /UMB
DEVICE=D:\OS2\MDOS\VDPMI.SYS
DEVICE=D:\OS2\MDOS\VCDROM.SYS
DEVICE=D:\OS2\PCMCIA.SYS
DEVICE=D:\OS2\MDOS\VPCMCIA.SYS
BASEDEV=DPT20XX.ADD
DEVICE=D:\OS2\MDOS\VMOUSE.SYS
DEVICE=D:\OS2\POINTDD.SYS
DEVICE=D:\OS2\MOUSE.SYS SERIAL=COM1
DEVICE=D:\OS2\COM.SYS
DEVICE=D:\OS2\MDOS\VCOM.SYS
CODEPAGE=437,850
DEVINFO=KBD,US,D:\OS2\KEYBOARD.DCP
DEVINFO=SCR,BGA,D:\OS2\VIOTBL.DCP
SET VIDEO_DEVICES=VIO_8514A
SET VIO_8514A=DEVICE(BVHVGA,BVH8514A)
DEVICE=D:\OS2\MDOS\VVGA.SYS
DEVICE=D:\OS2\MDOS\V8514A.SYS
```

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| *BASIC I* 486DX-33 | $1228 |
| *BASIC SX* 486SX-25<br>(No cache momory) | $1028 |
| *IBM III* 486SLC2-66<br>(IBM Mainboard; 64K cache) | $1168 |
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| INTEL 486DX -33<br>(256K Fast cache) | $1138 |
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| *Media Pro III* 486DX2-66 | $1948 |
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| 386DX - 40MHZ w/ CPU & 128K | $108 |
| 486DLC - 33 MHZ w/CPU & 128K | $128 |
| 486DLC - 40MHZ w/CPU & 128K | $168 |
| 486DX - 33/66 - w/256K No CPU | $98 |
| 486DX -50MHZ w/256K No CPU | $108 |

### *VESA Local Bus*

| | |
|---|---|
| 486DX - 33/66MHZ w/256K Cache No CPU | $108 |
| GENOA 486DX VESA w/256K No CPU | $128 |
| IBM 486SLC2-50 VESA w/64K w/CPU | $298 |
| IBM 486SLC2-66 VESA w/64K w/CPU | $348 |
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| ORCHID SUPER BOARD 486DX-33 w/256K | $188 |
| ORCHID SUPER-BOARD 486DX2-66 w/256K | $198 |
| AMI SUPER VOYAGER 486DX-33 w/256K | $CALL |
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| GENOA 8600 WINDOWS ACCERATOR VLB w/1MB | $130 |
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| SPIDER WINDOWS ACCELERATOR VLB w/1MB | $118 |
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## LISTING 2 (REARRANGED ACCORDING TO FUNCTION, WITH DESCRIPTIONS)

```
BASEDEV=OS2DASD.DMD                                                     > generic disk driver
BASEDEV=DPT20XX.ADD                                                     > DPT SCSI driver
BASEDEV=IBM1FLPY.ADD                                                    > floppy driver (non-MCA)
BASEDEV=PRINT01.SYS                                                     > printer support (non-MCA)
IFS=D:\OS2\HPFS.IFS /CACHE:512 /CRECL:4 /AUTOCHECK:G                    > HPFS support (cached)
SET USER_INI=D:\OS2\OS2.INI                                             > user .INI files
SET SYSTEM_INI=D:\OS2\OS2SYS.INI                                        > system .INI file
PROTSHELL=D:\OS2\PMSHELL.EXE                                            > win/fs interface (WPS)
DEVICE=D:\OS2\PMDD.SYS                                                  > required by WPS
SET RUNWORKPLACE=D:\OS2\PMSHELL.EXE                                     > user interface (WPS)
SET AUTOSTART=PROGRAMS,TASKLIST,FOLDERS,CONNECTIONS                     > permits object opening
SET OS2_SHELL=D:\OS2\CMD.EXE                                            > OS/2 command shell
SET COMSPEC=D:\OS2\CMD.EXE                                              > finds command shell
SET PROMPT=$i[$p]                                                       > prompt definition
SET KEYS=ON                                                             > keystroke history
LIBPATH=.;D:\OS2\DLL;D:\OS2\MDOS;D:\;D:\OS2\APPS\DLL;                   > path for .DLLs
SET PATH=D:\OS2;D:\OS2\SYSTEM;w:\OS2\ MDOS\WINOS2;
   \ D:\OS2\INSTALL;D:\;D: \OS2\MDOS;D:\OS2\APPS; /                     > path for programs
SET DPATH=D:\OS2;D:\OS2\SYSTEM;w:\OS2\ MDOS\WINOS2;
   \D:\OS2\INSTALL;D:\;D: \OS2\BITMAP;D:\OS2\MDOS; D:\OS2\APPS;         >path for data
SET EPATH=E:\OS2
REM SET DELDIR=C:\DELETE,512;D:\ DELETE,512;E:\DELETE,512;F:\DELETE,
   512;G:\DELETE,512;                                                   > path for UNDELETE
SET HELP=D:\OS2\HELP;D:\OS2\HELP\TUTORIAL;                              > pointer to help/tutorial
SET IPF_KEYS=SBCS                                                       > for Far East only
SET GLOSSARY=D:\OS2\HELP\GLOSS;                                         > pointer to glossary
SET BOOKSHELF=D:\OS2\BOOK                                               > pointer to cmd. ref.
BUFFERS=30                                                              > disk ops. buffering
DISKCACHE=512,LW,AC:D                                                   > FAT cache
PRINTMONBUFSIZE=134,134,134                                             > parallel port buffers
IOPL=YES                                                                > direct hardware access
PRIORITY_DISK_IO=YES                                                    > foreground disk priority
MAXWAIT=3                                                               > task wait period
THREADS=256                                                             > max threads open
MEMMAN=SWAP,PROTECT                                                     > virtual memory support
SWAPPATH=E:\OS2\SYSTEM 2048 2048                                        > swap file (max,min)
DEVICE=D:\OS2\TESTCFG.SYS                                               > select. install driver
COUNTRY=001,D:\OS2\SYSTEM\COUNTRY.SYS                                   > country
CODEPAGE=437,850                                                        > language
DEVINFO=KBD,US,D:\OS2\KEYBOARD.DCP                                      > kbd character set
DEVINFO=SCR,BGA,D:\OS2\VIOTBL.DCP                                       > video fonts
SET VIDEO_DEVICES=VIO_8514A                                             > 8514/A video driver
SET VIO_8514A=DEVICE(BVHVGA,BVH8514A)                                   >  -"-
DEVICE=D:\OS2\MOUSE.SYS SERIAL=COM1                                     > mouse driver
DEVICE=D:\OS2\POINTDD.SYS                                               > mouse pointer
DEVICE=D:\OS2\COM.SYS                                                   > serial port driver
DEVICE=D:\OS2\PCMCIA.SYS                                                > PCMCIA driver
PROTECTONLY=NO                                                          > shared DOS/OS2 env.
DEVICE=D:\OS2\DOS.SYS                                                   > OS/2->VDM comm. driver
SHELL=D:\OS2\MDOS\COMMAND.COM D:\OS2\MDOS                               > DOS command shell
DOS=LOW,NOUMB                                                           > DOS memory location
RMSIZE=640                                                              > DOS session memory
FILES=20                                                                > DOS max. files open
FCBS=16,8                                                               > DOS max. file ctrl blocks
BREAK=OFF                                                               > DOS no ctrl-brk polling
DEVICE=D:\OS2\MDOS\VEMM.SYS                                             > DOS EMM support
DEVICE=D:\OS2\MDOS\VXMS.SYS /UMB                                        > DOS XMS support
DEVICE=D:\OS2\MDOS\VDPX.SYS                                             > DOS DPMI support
DEVICE=D:\OS2\MDOS\VDPMI.SYS                                            >    -"-
DEVICE=D:\OS2\MDOS\VMOUSE.SYS                                           > DOS mouse support
DEVICE=D:\OS2\MDOS\VVGA.SYS                                             > DOS VGA support
DEVICE=D:\OS2\MDOS\V8514A.SYS                                           > DOS 8514/A support
DEVICE=D:\OS2\MDOS\VCOM.SYS                                             > DOS serial port support
DEVICE=D:\OS2\MDOS\VCDROM.SYS                                           > DOS CDROM support
DEVICE=D:\OS2\MDOS\VPCMCIA.SYS                                          > DOS VPCMCIA
```

## LISTING 3 (CUSTOM)

```
set ati_res=1280x1024
device=d:\os2\drivers\ati0$.sys
set video_devices=vio_ati_ultra
set vio_ati_ultra=device(bvhvga,bvh8514a)
BASEDEV=OS2DASD.DMD
BASEDEV=DPT20XX.ADD
BASEDEV=IBM1FLPY.ADD
BASEDEV=PRINT01.SYS
IFS=D:\OS2\HPFS.IFS /AUTOCHECK:G
SET USER_INI=D:\OS2\OS2.INI
SET SYSTEM_INI=D:\OS2\OS2SYS.INI
PROTSHELL=D:\OS2\PMSHELL.EXE
SET RUNWORKPLACE=D:\OS2\PMSHELL.EXE
DEVICE=D:\OS2\PMDD.SYS
SET AUTOSTART=PROGRAMS,TASKLIST,FOLDERS
set restartobjects=startupfoldersonly
SET OS2_SHELL=D:\OS2\CMD.EXE
SET COMSPEC=D:\OS2\CMD.EXE
SET PROMPT=[$p]$g
SET KEYS=ON
set dircmd=/on /p
LIBPATH=.;d:\os2\drivers;D:\OS2\DLL;D:\OS2\MDOS
   ;D:\;
SET PATH=D:\OS2;D:\OS2\SYSTEM;D:\OS2\
   INSTALL;D:\;D:\OS2\MDOS;D:\OS2\APPS;
SET DPATH=D:\OS2;D:\OS2\SYSTEM;D:\OS2\
   INSTALL;D:\;D:\OS2\BITMAP;D:\OS2\MDOS;
SET EPATH=D:\OS2
SET DELDIR=C:\DELETE,512;F:\DELETE,512;G:\
   DELETE,512;
SET HELP=D:\OS2\HELP;
SET BOOKSHELF=D:\OS2\BOOK
BUFFERS=30
DISKCACHE=64,AC:cDef
PRINTMONBUFSIZE=402,0,0
IOPL=YES
PRIORITY_DISK_IO=YES
MAXWAIT=3
THREADS=256
MEMMAN=SWAP,PROTECT
SWAPPATH=g:\dat 2048 2048
DEVICE=D:\OS2\TESTCFG.SYS
COUNTRY=001,D:\OS2\SYSTEM\COUNTRY.SYS
CODEPAGE=437,850
DEVINFO=KBD,US,D:\OS2\KEYBOARD.DCP
DEVINFO=SCR,BGA,D:\OS2\VIOTBL.DCP
rem SET VIDEO_DEVICES=VIO_8514A
rem SET VIO_8514A=DEVICE(BVHVGA,BVH8514A)
DEVICE=D:\OS2\POINTDD.SYS
DEVICE=D:\OS2\MOUSE.SYS SERIAL=COM1
DEVICE=D:\OS2\COM.SYS (3,0308,12,p)
PROTECTONLY=NO
DEVICE=D:\OS2\DOS.SYS
SHELL=D:\OS2\MDOS\COMMAND.COM
   D:\OS2\MDOS /p
DOS=LOW,NOUMB
RMSIZE=640
FILES=40
```

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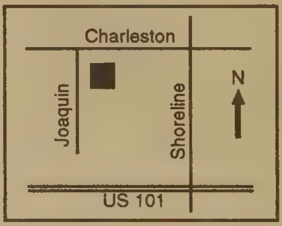

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| WORDPERFECT 6.0 WINDOWS | 225 |
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```
FCBS=16,8
BREAK=OFF
DEVICE=D:\OS2\MDOS\VEMM.SYS
DEVICE=D:\OS2\MDOS\VDPX.SYS
DEVICE=D:\OS2\MDOS\VXMS.SYS /UMB
DEVICE=D:\OS2\MDOS\VDPMI.SYS
DEVICE=D:\OS2\MDOS\VMOUSE.SYS
DEVICE=D:\OS2\MDOS\VCOM.SYS
DEVICE=D:\OS2\MDOS\VVGA.SYS
rem DEVICE=D:\OS2\MDOS\V8514A.SYS
```

## RESOURCES:

CS-Edit/2

Presents simple check and list boxes and explanatory prompts in Presentation Manager windows for checking/changing CONFIG.SYS. The user need not understand the syntax of the various commands, as the program presents the user with valid alternatives (e.g. the user cannot enter a DEVICE= command which refers to a nonexistent device driver file). A limited function demo version will be available for distribution via BBSes and other online services. A version now in development will allow editing of CONFIG.SYS files on remote network workstations.

**Compuserve: GO OS2AVEN, LIB 1: file CSEDB2.ZIP**

DELAY

Simple device driver that does nothing except wait for a specified time when it initializes; it can also display an optional message. It takes only a few bytes of memory, and multiple loads do not increase the space used. It is intended to give time to read the output as the system loads, and to make systems on a network wait until there is time for the server to start up (e.g. after a power failure). Version 1.5; fixes obscure driver corruption problem

**Compuserve: GO OS2USER, LIB3: file DELAYD.ZIP**

CHKPath

Will verify that all directories in a system path can be accessed (including LIBPATH). It will also auto-check some common paths. Nice if you make modifications in your CONFIG.SYS and want to make sure there are no problems.

**Compuserve: GO OS2USER, LIB3: file CHKPTH.ZIP**

PAUSE

Do you ever want to read those messages that flash by so quickly when OS/2 is booting? Add this driver to your CONFIG.SYS file, and the system will pause for the number of seconds you specify so that you can read the messages.

**Compuserve: GO OS2USER, LIB2: file PAUSE1.ZIP**

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- 1.2 or 1.44 FD
- SVGA Monitor
- VLB SVGA Card & VLB IDE Controller
- 3 VESA Local Bus Slots

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VESA Local Bus
- 256K Cache
- 130 MB Hard Disk
- 1.2 or 1.44 FD
- SVGA Monitor
- VLB SVGA Card & VLB IDE Controller
- 3 VESA Local Bus Slots

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| 14" SVGA .28dp | 245 |
| 14" SVGA .28dp NI | 270 |
| 15" Impression 5, 1280x1024, .28dp, NI | 395 |
| 17" Impression 7, 1280x1024, .28dp, NI | 890 |
| 14" ViewSonic 4E | 275 |
| 14" ViewSonic 6E, NI | 299 |
| 15" ViewSonic 6FS, NI | 530 |
| 17" ViewSonic 7, NI | 939 |
| 17" KFC 1713, 1280x1024, .26dp, NI | 795 |
| 15" NEC 3FGe | 600 |
| 15" NEC 4FGe | 709 |

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| | |
|---|---|
| 80 MB IDE | $160 |
| 130 MB IDE | 170 |
| 170 MB IDE | 180 |
| 213 MB IDE | 210 |
| 245 MB IDE | 230 |
| 340 MB IDE | 300 |
| 540 MB IDE/SCSI | CALL |
| 1.2/1.7 GB | CALL |

### VIDEO CARDS

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|---|---|
| Trident 512K | $38 |
| Trident 1MB | 58 |
| Cirrus Logic SVGA VLB 1MB | 80 |
| Avance Logic SVGA VLB 1MB | 95 |
| Spider SVGA VLB 1MB | 100 |
| Spider Black-Widow VLB 1M/2M | 230/320 |
| Diamond SpeedStar Pro ISA/VLB | 130 |
| Diamond Stealth ISA/VLB | 165 |
| Orchid Fahrenheit VLB 1MB | 165 |
| ATI Graphics Ultra Plus 2M | 249 |
| ATI Graphics Ultra Pro 2M | 365 |

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|---|---|
| Brother HJ-400 Ink Jet | $295 |
| Panasonic 1123 | 210 |
| Panasonic 2123 | 245 |
| Panasonic KX-P4410 | 645 |
| HP Laser 3P/4/4L/4M | 859/1369/699/1899 |
| HP 500/500C/550C | 329/409/609 |

### MISC.

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|---|---|
| 2400B Modem | $35 |
| Fax/Modem (9600/2400) Int | 55 |
| Fax/Modem 14,400/14,400 Int/Ext | 165/185 |
| Summit Tape Back-Up | |
| 250 MB | 210 |
| Colorado Tape Back-Up | |
| 120 MB | 155 |
| 250 MB | 205 |
| Conner Tape Back-Up 250 MB w/Tape | 165 |
| Ethernet Card 16-Bit | 99 |
| Logitech Scanman 32 w/OCR Software | 139/185 |
| Logitech Scanman 256 w/OCR Software | 249/299 |
| 3 Button Mouse | 15 |
| Logitech First Mouse/MouseMan | 40/75 |
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- Encyclopedia CD-ROM

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### OTHERS

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| SoundBlaster Pro Deluxe | $119 |
| SoundBlaster 16 | 159 |
| SoundBlaster 16 ASP | 205 |
| Toshiba 3401B SCSI CD-ROM | 399 |

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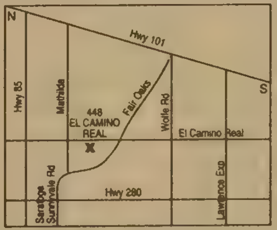

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| 386DX-40MHz w/ 128Kb | $118 |
| 486SX-25MHz w/ 128Kb | $158 |
| 486DLC-33MHz w/ 128Kb | $128 |
| 486DLC-40MHz w/ 128Kb | $148 |
| 486DX-33MHz w/ 128Kb | $338 |
| 486DX-50MHz w/ 128Kb | $465 |
| 486DX2-66MHz w/ 128Kb | $538 |

### VESA Local Bus

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|---|---|
| Opti 386DX-40MHz w/ 128Kb | $138 |
| Opti 486DLC-33MHz w/ 128Kb | $158 |
| Opti 486DLC-40MHz w/ 128Kb | $178 |
| Opti 486SX-25MHz w/ 128Kb | $188 |
| Opti 486SX-33MHz w/ 128Kb | $228 |
| Opti 486DX-33MHz w/ 128Kb | $348 |
| Opti 486DX2-50MHz w/ 128Kb | $398 |
| Opti 486DX2-66MHz w/ 128Kb | $558 |
| IBM 486SLC2-50MHz w/ 64Kb | $238 |
| IBM 486SLC2-66MHz w/ 64Kb | $288 |
| SIS 486SX-25MHz w/ 256Kb (ZIF Socket) | $218 |
| SIS 486SX-33MHz w/ 256Kb (ZIF Socket) | $258 |
| SIS 486DX-33MHz w/ 256Kb (ZIF Socket) | $398 |
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| SIS 486DX-50MHz w/ 256Kb (ZIF Socket) | $548 |
| SIS 486DX2-66MHz w/ 256Kb (ZIF Socket) | $598 |
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| IDE Orchid VLB (2HD & 2FD) 2s, 1p, 1g | $55 |
| IDE DTC 2270 VLB (2HD & 2FD) 2s, 1p, 1g | $58 |
| IDE Promise 4030 VLB Caching (0Mb --> 16Mb) | $128 |
| SCSI DTC 3280a SCSI (16-bit) | $98 |
| SCSI DTC 3270 VLB SCSI (32-bit) | $118 |
| SCSI Adaptec 1542C or 1542CK (16-bit) | $188/ $240 |
| SCSI UltraStor VLB 34F Bus Master (32-bit) | $258 |
| SCSI Adaptec VLB 2842 Master (32-bit) | $308 |
| SCSI Adaptec 2742T EISA Bus Master (32-bit) | $368 |
| SCSI DTC 3290 EISA Bus Master (0Mb ---> 16Mb) | $388 |
| SCSI Bus Logic VLB BT445S (32-bit) | $268 |

## MONITORS

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|---|---|
| 14" (1024x768) .39 Interlaced | $185 |
| 14" (1024x768) .28 Interlaced | $228 |
| 14" (1024x768) .28 Non-Interlaced | $248 |
| 14" Acer (1024x768) .28 Non-Interlaced (34T) | $285 |
| 14" ViewSonic 6E (1024x768) .28 NI (60Hz) | $285 |
| 14" Sampo KDM-1466 (1024x768) .28 NI (70Hz) | $318 |
| 14" ADI 3G (1280x1024) .28 NI | $338 |
| 14" NEC 1431 (1024x768) .28 NI Low Radiation | $338 |
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| 15" ADI 4G (1280x1024) .28 NI | $418 |
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| 15" NEC 3FGE (1024x768) .28 NI (60Hz) | $573 |
| 15" NEC 4FGE (1024x768) .28 NI (72Hz) | $673 |
| 17" SAMPO KDM-1766 (1280x1024) .31 NI | $698 |
| 17" ADI Low Radiation (1280x1024) .26 NI | $868 |
| 17" ViewSonic 7 (1280x1024) .28 NI | $858 |
| 17" Nanao F550i (1280x1024) .28 NI | $988 |

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|---|---|
| Super VGA Card w/ 512Kb | $34 |
| Windows Accelerator w/ 1Mb (Cirrus Logic) | $54 |
| TsengLab ET-4000 Hi-Color w/ 1Mb | $68 |
| Windows Accelerator VLB w/ 1Mb (Cirrus Logic) | $78 |
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| Genoa 8500 Windows Accelerator VLB w/ 1Mb | $95 |
| Spider Windows Accelerator VLB w/ 1Mb | $95 |
| Spider+ Windows Accelerator VLB w/ 1Mb | $120 |
| Spider Black Widow VLB w/ 1Mb | $195 |
| Spider Black Widow VLB w/ 2Mb | $255 |
| Orchid Fahrenheit 1280 Vram w/ 1Mb | $118 |
| Orchid Fahrenheit 1280 Plus w/ 1Mb | $138 |
| Orchid Fahrenheit 1280 VLB w/ 1Mb | $138 |
| Orchid Celsius VLB w/ 1Mb | $195 |
| Orchid Celsius VLB w/ 2Mb | $248 |
| Orchid P9000 VLB w/ 3Mb | $338 |
| Diamond Speed Star Pro VLB w/ 1Mb | $108 |
| Diamond Stealth 24 VLB w/ 1Mb | $148 |
| Diamond Stealth Pro VRAM w/ 2Mb | $318 |
| Diamond Viper VLB w/ 2Mb | $368 |
| ATI Graphic Ultra Pro VLB w/ 2Mb | $325 |
| Other | $Call |

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| 255MB IDE 13ms (Caviar WD2250) | $208 |
| 340MB IDE 12ms (Caviar WD2340) | $268 |
| 420MB IDE 12ms (Caviar WD2420) | $368 |
| 540MB IDE 12ms (Caviar WD2540) | $Coming Soon |

### Maxtor

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| 130MB IDE 15ms (Maxtor 7120A) | $155 |
| 213MB IDE 15ms (Maxtor 7213A) | $188 |
| 245MB IDE 15ms (Maxtor 7245A) | $208 |
| 340MB IDE 14ms (Maxtor 7345A) | $268 |
| 540Mb IDE 8.5ms (Maxtor MXT-540A) | $688 |
| 340Mb SCSI 14ms (Maxtor 7345s) | $338 |
| 540MB SCSI 8.5ms (Maxtor MXT-540s) | $688 |
| 1.2Gb SCSI 8.5ms (Maxtor MXT-1240s) | $1168 |
| 1.7Gb SCSI 13ms (Maxtor P1-17s) | $1108 |

### Quantum

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|---|---|
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| 245MB IDE 16ms (LPS240A) | $228 |
| 525MB SCSI-II <10ms 256Kb Cache (LPS525) | $558 |
| 1.2Gb SCSI-II < 10ms 512Kb Cache (PD1225S) | $888 |

### Fujitsu

| | |
|---|---|
| 520MB 12ms IDE (M2624T) 3.5" | $568 |
| 520MB 12ms SCSI-II (M2624FA) 3.5" | $568 |
| 1.2GB 10ms SCSI-II (M2694SA) 3.5" | $888 |
| 2.4GB 12ms SCSI-II (M2654SA) 5.25" FH | $1548 |

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| 170MB IDE 17ms (CP30174E) | $165 |
| 212MB IDE 12ms (CP30204) | $198 |
| 250MB IDE 14ms (CP30254) | $208 |

### Floppy Drives

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|---|---|
| 1.2Mb Floppy Drive (Teac) | $45 |
| 1.44Mb Floppy Drive (Teac) w/ bracket | $45 |
| 2.88Mb Floppy Drive (Toshiba) | $65 |
| 1.2MB & 1.44Mb Combo (Teac) | $108 |

### CD-ROM Drives

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|---|---|
| Mitsumi w/ Controller (350ms) | 148 |
| Panasonic CR522 w/ Audio Card & Cables (380ms) | $188 |
| Panasonic CR562 w/ Audio Card & Cables (320ms) | $238 |
| Panasonic CR532 SCSI (290ms) | $318 |
| Texel DM-3028 SCSI (245ms) | $365 |
| Toshiba XM-3401B SCSI (200ms) | $365 |
| Chinon CD-535 SCSI (280ms) | $365 |
| NEC CDR-84-1 SCSI (265ms) | $385 |
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| Keyboard 101 Keytronic | $28 |
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| Keyboard 101 Enhanced Click (NMB) | $45 |
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| Keyboard 101 w/ TrackBall (Qtronic) | $65 |
| Keyboard Ultra (NorthGate) | $95 |

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| Intel Modem 14.400 & Fax 14,400 ( Internal ) | $168 |
| Intel Modem 14.400 & Fax 14,400 (External) | $Call |
| US Robotics Sporter 14,400 (Modem & Fax) Int. | $168 |
| US Robotics Sporter 14,400 (Modem & Fax) Ext. | $188 |

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|---|---|
| Logitech 2 Buttons Mouse | $12 |
| Logictech Mouse Man Serial | $38 |
| Logictech Mouse Man Bus | $55 |
| Logictech Portable Serial Mouse | $45 |
| Real Microsoft Serial Mouse (New Model) | $40 |
| Real Microsoft Bus Mouse | $65 |

## ACCESSORIES

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|---|---|
| CD Caddy | $3.75 |
| Cpu cooling kit w/ heatsink & fan | $9.95 |
| MS-DOS 6.0 (w/ System) | $38 |
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# WIRE–
# Women's Information Resource & Exchange

## *New Online Service Debuts*

**BY KEVIN SAVETZ**

For various reasons, women have always been a minority in the world of online telecommunications. The Women's Information Resource and Exchange (WIRE) is a new computer bulletin board system that's working to get women online, and provide information and develop an online community specifically for women.

Says Nancy Rhine, WIRE cofounder and development director, "Women haven't been encouraged to feel science and technology are things that they could get involved in. There hasn't been much marketing or education. Structuring of content hasn't been consciously created with women in mind. In WIRE's case, we are thinking of women all the way through, from picking the interface to choosing what information we make available."

WIRE draws its content from women's organizations, government sources, newswires, and users. Information includes a listing of Washington events and issues that women should know about, a calendar of conferences, the *Congressional Caucus for Women's Issues Update* newsletter, and international stories about women. "Our goal," says Rhine, "is to be an international network for women's interests."

While WIRE's primary market is female, men are not turned away. "We're finding quite a few men who are really supportive and interested. They want to come in and participate, and we think that's great," notes Rhine.

## WHAT'S ON WIRE

WIRE offers a combination of read-only information resources, messaging forums (in which users post messages to be read later), and interactive areas (in which participants engage in real-time "chat" sessions). Forum topics include pregnancy and birth, adoption, fertility, birth control, menopause, cancer and health issues, chronic fatigue syndrome, fitness and wellness information, managing stress, home schooling, balancing career and family, career and finance, business, elder care, the environment, education, and gender equity. Adds Rhine, "There will also be a forum on women in technology—where technology is going, and what is our relationship with it, as humans and as women."

Other conferences will assist users in selecting child care facilities, locating women's organizations, and finding scholarships for women. Parenting is also covered from many angles, including lists of books and toys—as recommended by kids and parents. A area of "herstory" is also available, complete with the texts of historical documents pertinent to women, including the Seneca Falls Declaration and the Equal Rights Amendment of 1921.

WIRE will host "live" interviews, bringing experts or other prominent people ("authors, heads of companies, politicians, physicians, maybe a midwife," says Rhine) online to discuss subjects of interest.

## WIRE ON THE NET

In addition, WIRE provides electronic mail to the Internet, Usenet newsgroups, and UPI newswires. Rhine explains, "We want to be a central, easily accessible online resource about women's issues and interests. We want to bring things in from the Internet and point people to other information. We can't supply everything, so we want to be a guide to other information for women online." WIRE users can join any of the Internet's mailing lists—the system administrators provide a list of Internet conferences pertaining to women's issues. Some are of general interest, and other are strictly for professionals. Topics include education, foods, kids, travel, pets, gardens, science, space, health, law, movies, and music.

## EASE OF USE

WIRE's primary interface is graphical. Commands are made by pointing to onscreen items rather than via a command-line interface. (A command-line interface is available, but isn't the best way to use WIRE.) "We wanted to lower the hurdle of learning a complex interface. Women are busy, intelligent people. We want to enable them to easily get information and the interpersonal networking that goes on online," says Rhine, who hopes that as networks become easier to use, it will encourage exploration of the online world.

## EARLY ADOPTERS

WIRE recently opened its virtual doors to five hundred "founding subscribers" — people who are interested in helping build the system, being early contributors, and helping to make WIRE a useful tool and enjoyable online experience for women. "Our founding subscribers will be people who want to collaborate in building this online community," Rhine says; the formal grand opening is scheduled for January.

To become a founding subscriber, call the WIRE office at (415)615-8989 and request the free software to access the system. Graphical interface software is available for Macintosh computers and IBM-compatibles running Windows. Users of other computer systems can access WIRE's text-based command-line interface.

WIRE's subscription fee is $15 per month, which includes two hours of access each month. Additional time is $2.50 hourly. Once you have the necessary software, you can connect to WIRE by a direct phone call, or via Sprintnet. (Sprintnet is a "packet-switching network" that allows computer users in most US cities to connect to WIRE by making a local phone call. Sprintnet users pay an additional hourly surcharge to offset WIRE's cost of this service; this can bring the hourly cost to as much as $7.50, depending on time of day.) Currently, only users of the Macintosh graphical software and the command-line interface can connect through Sprintnet. ■

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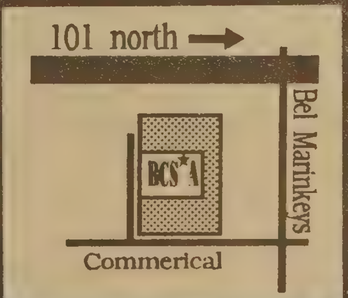

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# UNIX Power Tools

## *New Book/CD-ROM Provides Valuable Reference*

**BY DAVID HAWKINS**

*UNIX Power Tools*, by Jerry Peek, Tim O'Reilly, and Mike Loukides, has taken a prominent position on my bookshelf recently. I haven't had this much fun reading a technical book in a long time. *UNIX Power Tools* (which I'll be referring to as UPT) is a joint effort of O'Reilly & Associates (the Nutshell people) and Bantam Books.

The three authors wrote sections, tied in articles from other sources, and included postings from USENET. People watch the megabytes of information that flow through the net every day and save valuable bits. Some excellent postings are included here.

Instead of taking one subject and going over every single aspect of it, the authors cross-reference everything. For example, early in the book they discuss the basics of how to set up your login on a UNIX system. They also mention in parentheses that later on in the book there are some very complex examples of how people have customized their accounts. If you want to skip to the complex stuff, you can; if you're reading a complex chapter and want to go back to the basics behind it, the references are there.

The cross-references work well. As I was rereading the book I did a lot more skipping around, and I could still find what I wanted. It has a good index for those times when you don't know where to start looking.

The book is expensive (almost $60 in the US) partly because it comes with a CD-ROM. (And partly because it's over eleven hundred pages long.) The CD-ROM includes shell scripts, source code, and compiled binaries for material mentioned in the book. Of course, you need a CD player hooked up to a computer to make use of this, but it's good to have all that available without typing in a lot of source listings.

If you don't have a CD player, you can take solace in the notion that it builds character to type everything in. Plus you learn things when you type in code and try to run it that you won't learn in other ways.

If this fails to console you, they do include a section on how to get everything through other media.

### THE GOOD STUFF

What I loved about the book was that it brought together a lot of tips I'd picked up on over the past eight years. From time to time I'd hear of a neat trick you could do with UNIX and I'd jot it down on an envelope—and then lose the envelope.

UPT collects some great tips. It also explains some of the basic commands and how to make them work together to accomplish a task. I had shied away from some commands in the past because they looked too complex, and UPT showed how they could be mastered.

Once I'd read the book it was surprising how much I could start using immediately. I'd be typing something in and would think, "Hey, there was a neat trick that would make that a lot easier!" and go look up the tip.

### ON THE OTHER HAND

While I was delighted to see tons of tips and new tricks, I did notice some things that didn't seem quite right. When in doubt, test it.

Part of the problem is that there are a lot of versions of UNIX. You have the basic differences between SysV and BSD, plus a lot of UNIX look-alikes. So there were continual references to "in some versions you can't do this." I'd love it if there was a note about what version they thought was different—if it was one I'd never encounter, I could ignore that note.

On page 363 the authors talk about the difficulties you can cause by making a tar tape using absolute pathnames, i.e., *tar c /usr/u/jlm/News* would make a tape that would be hard to extract on a system where there was not a "jlm" home directory. However, they don't tell you what to do if you get a tape like that. Easy—use GNU tar, which is included on the CD-ROM. The GNU version of tar can easily handle absolute paths when it extracts files from a tar archive.

They mention the "chown" command early in the book, page 27. Some versions of UNIX (SunOS as an example) place the chown command in the /etc directory. So if you can't find that command, check for /etc/chown.

Early in the book (page 10), they suggest that you find what your shell is by typing

```
ypcat passwd | grep yourloginname
```

If the password file you are examining is large, you might get back too many lines. To get just your line, type

```
ypcat passwd | grep ^yourloginname:
```

### CORRECTIONS

On page 840 the authors appear to be saying the "fmt" command won't wrap just the long lines in a file. But you can use "fmt -s" to make the formatting command wrap the long lines without redoing an entire paragraph. For example, if you have a source code file, test.c, and want to format it to make it look better when you print it, just do

```
fmt -s test.c > test.c.print
```

and then print the output file. Only the long lines will be wrapped.

The section on quoting "here document" terminators, page 927, is wrong and should be removed. A "here document" looks like

```
cat << EOF text and more text EOF
```

and it's the same with /bin/sh and /bin/csh. They have an earlier example of a here document in csh (on page 181) that wouldn't work if quoting was necessary. Also, it would be more accurate to say that if you quote the first EOF then you have to quote the second one.

### ALL IN ALL

This is a good book with lots of things to try. I learned a lot more about UNIX, and I haven't had time to try all the programs they included. ■

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| SCSI DTC 3290 AS (EISA) | 380 |
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| SCSI Adaptec 1542C | 182 |
| Promise PM-20440 (SCSI) w/o Cache Up To 16 MB | 158 |
| Promise IDE Cache Controller 512K-16MB | 108 |
| DC-600B IDE Cache | 95 |
| DC-680 VL IDE | 140 |
| DC-800 SCSI II Cache | 192 |
| DC-620B EISA IDE Cache | 140 |
| **NETWORK** | |
| Ethernet | |
| NC 2000 16 Bit | $45 |
| NC 2000 Combo | 49 |
| **Arcnet LANCard** | |
| 8-Bit Star Topology | $40 |
| 16-Bit Star Topology | 56 |
| 8-Bit Bus/Star/BNC/UTP | 43 |
| 16-Bit Bus/Star/Coax/UTP | 43 |
| 8-Port Coax Active Hub | 112 |
| 4-Port External Passive Hub | 14 |
| **MODEM CARD/FAXES** | |
| 2400 Internal Modem | $27 |
| Fax/Modem (9600Fax/2400 Modem) | 42 |
| **US ROBOTICS** | |
| Sportster 9600 Modem Int | $144 |
| Sportster 14400 Modem Int | 147 |
| Sportster 14400 Modem Ext | 167 |
| Sportster 14400 Fax Modem Int | 165 |
| **MISCELLANEOUS** | |
| Super I/O | $16 |
| AT I/O Card (2S/1P/1G) | 11 |
| 120 MB Tape Back-Up | 137 |
| 250 MB Tape Back-Up | 163 |
| Tape Cartridge | 18 |
| JT-10 Trakker 120 MB Ext | 285 |
| ST-20 Trakker 240 MB Ext | 322 |
| PT-25 Power Tape 2.4 GB Int | 950 |
| PT-50 Power Tape 4 GB Int | 1464 |

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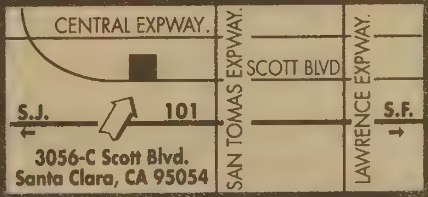

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# *Complete System Solution Center!*

## Why *ACCESS?*

**7 Years of Business Experience**

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**Located in the Heart of Silicon Valley**

**Over 2,000 Line Items to Choose From**

**Well-Stocked 18,000 sq. ft. Showroom**

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ACCESS' high-speed machines provide exceptional performance and flexibility for long-term business needs.
Delivers multitasking capabilities for easy handling of simultaneous applications.
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**FREE 300W Line Conditioner with any Access system purchased.**

ACCESS

## ACCESS VLB 486DX2-66

- ☐ 256K Cache, 4MB RAM exp. to 32MB
- ☐ AMI Bios ☐ 2 serial/parallel/game ports
- ☐ CPU cooling fan
- ☐ IDE hard/floppy controller
- ☐ Real-time clock/calendar
- ☐ 5.25" 1.2MB floppy drive
- ☐ 101 Enhanced keyboard
- ☐ Deluxe Desktop or Medium Tower
- ☐ 1 year parts & labor warranty

*Call for Lowest Prices on Hard drives & Monitors!*

**$999**

## ACCESS VLB 486DX-33

- ☐ 256K Cache, 4MB RAM exp. to 32MB
- ☐ AMI Bios ☐ 2 serial/parallel/game ports
- ☐ IDE hard/floppy controller
- ☐ CPU cooling fan
- ☐ Real-time clock/calendar
- ☐ 5.25" 1.2MB floppy drive
- ☐ 101 Enhanced keyboard
- ☐ Deluxe Desktop or Medium Tower
- ☐ 1 year parts & labor warranty

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## ACCESS 386DX-33

- ☐ 128K Cache, 1MB RAM exp. to 32MB
- ☐ AMI Bios ☐ 2 serial/parallel/game ports
- ☐ IDE hard/floppy controller
- ☐ Real-time clock/calendar
- ☐ 5.25" 1.2MB floppy drive
- ☐ 101 Enhanced keyboard
- ☐ Deluxe Desktop or Mini Tower
- ☐ 1 year parts & labor warranty

**$339**

# ACCESS COMPUTER TECHNOLOGIES

# 408-247-4444

**2225 EL CAMINO REAL SANTA CLARA, CA 95050**

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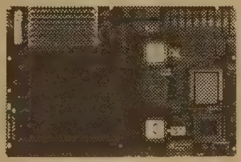
## *MicroStar* 486DX2

**VESA Local Bus** Motherboard



- ☐ **INTEL** OverDrive Socket
- ☐ **256K** Cache memory
- ☐ 2/3 VESA Local Bus slots
- ☐ Upgradeable to 32MB
- ☐ 7 16-bit AT bus slots

*Call for CPU Prices!*

| | |
|---|---|
| DX2-50 | $129 |
| DX2-66 | 139 |

## 386DX-40MHZ

Motherboard **w/CPU**

Manufactured by **Silicon Star**

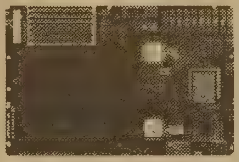
- ☐ 80386DX-40 processor
- ☐ **128K** Cache memory
- ☐ AMD CPU
- ☐ 0MB exp to 32MB

**$99**

## *ALARIS* 486SLC2

**VESA Local Bus** Motherboard

**ALARIS** Manufactured by **IBM**



- ☐ **IBM** SLC CPU
- ☐ **256K** Cache memory
- ☐ 2 VESA Local Bus slots
- ☐ Includes Co-Processors
- ☐ 16K internal cache

| | |
|---|---|
| SLC2-50 W/CPU | $198 |
| SLC2-66 W/CPU | 329 |

## ACCESS 386DX-40

## Mini Tower System

*Affordable System!*

- ☐ 128K Cache, 1MB RAM exp to 32
- ☐ AMI Bios ☐ 2 serial/parallel/game ports
- ☐ IDE hard/floppy controller
- ☐ Real-time clock/calendar
- ☐ 5.25" 1.2MB floppy drive
- ☐ 101 Enhanced keyboard
- ☐ Deluxe Desktop or Mini Tower
- ☐ 1 year parts & labor warranty

**$299**

## IBM 486SLC-50MHz

## Basic System

Manufactured by **IBM**

- ☐ IBM 486SLC-50MHz CPU
- ☐ Western Digital Chip Set
- ☐ 2 serial/parallel ports
- ☐ Built-in Window accelerator
- ☐ Supports up to 32MB RAM
- ☐ Internal 16K cache
- ☐ Built in IDE HD/FD controller
- ☐ Slim desktop case design
- ☐ 2 year parts & labor warranty

Made In USA

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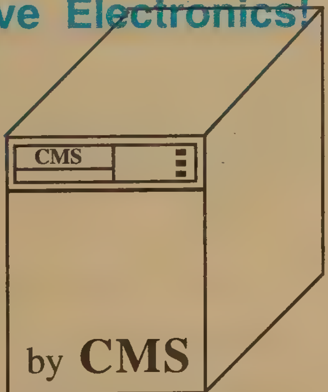

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|---|---|---|---|
| 300 VA | $49 | 1000 VA | $69 |
| 500 VA | 59 | 3000 VA | 99 |

ORCHID

## 486 256K Cache MOTHERBOARDS

| | |
|---|---|
| DX-33/DX2-66 AM0266V | $198 |
| DX-50 AM0450V | 205 |

Genoa SYSTEMS CORPORATION

## 486 256K Cache MOTHERBOARDS

**VESA Local Bus w/Pentium Chip Socket**

| | |
|---|---|
| DX-33 | $249 |

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*The smartest design.*
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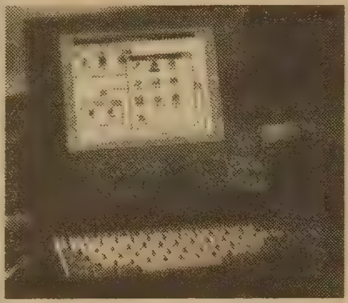


*The affordable,*
*full-featured 486*
*notebook.*
*Weigts less than 6lbs.*

### ActionNote™ 4SLC/33 *Notebook*

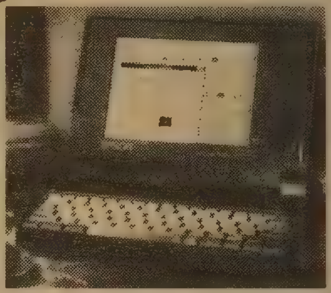
**$1699**

- ☐ **486SLC/33MHz**
- ☐ 120MB hard drive
- ☐ DOS, Windows
- ☐ WinFax & BitCom software
- ☐ Carrying Case
- ☐ **4MB RAM** exp to 8MB
- ☐ Logitech trackball
- ☐ Backlit LCD VGA
- ☐ 24/96 built-in Fax modem
- ☐ 1-year one-site service in US

*The unbelievably small,*
*lightweight 486.*

**•30% LIGHTER**
**•31% SMALLER**

*Powerful performance*
*in a small package.*
*Weigts less than 4lbs.*



### ActionNote™ 4000 *Sub-notebook*

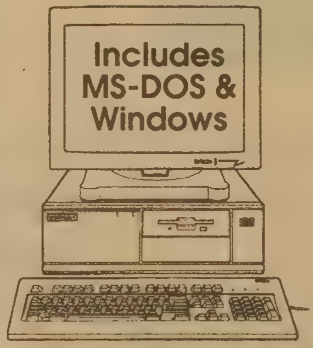
**$1799**

- ☐ **486SLC/33MHz**
- ☐ 80MB removable HD
- ☐ DOS, Windows
- ☐ 1 PCMCIA II slot
- ☐ Carrying Case
- ☐ **4MB RAM** exp to 8MB
- ☐ Built-in 2 button trackball
- ☐ Backlit LCD VGA
- ☐ External 3.5" floppy drive
- ☐ 1-year one-site service in US

## Equity 4 Systems

### Affordable High Performance!

- ☐ Support for Intel's OverDrive
- ☐ **4MB RAM** exp. to 32MB
- ☐ **512K** video DRAM exp to 1MB
- ☐ 101 key keyboard & mouse
- ☐ Zero Insertion Force sockets
- ☐ **3.5"** floppy drive
- ☐ 4 ISA 16-bit slots
- ☐ Space saving design



*One Year On-Site Warranty!*

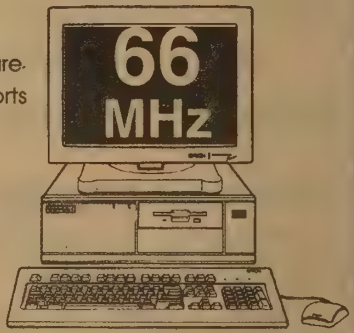
*Monitor not included

| | | |
|---|---|---|
| **486SX-25** | 120MB HDD | **$989** |
| **486DX-33** | 120MB HDD | **1189** |
| **486DX-33** | 240MB HDD | **1339** |

## PROGRESSION 486DX2/66

### *Born to Run Windows... The Fastest in its Class!*

- ☐ **Intel** 486DX2/66 processor
- ☐ Built-in math coprocessor
- ☐ Epson's VirtualCache™
- ☐ 3.5" 1.44MB FDD
- ☐ MS-DOS, Win. included
- ☐ Wingine™ graphics acceleration architecture
- ☐ Intergrated serial, parallel, mouse & VGA ports
- ☐ Built-in 8KB cache
- ☐ 4MB RAM exp. to 36MB
- ☐ 6 16-bit I/O slots



**$1399**

*Monitor not included

## PROGRESSION 4 Systems

*SMALLER FOOTPRINT THAN PROGRESSION!*

| | | |
|---|---|---|
| **486DX-33** | 120/240MB HDD | **$1149/1289** |
| **486DX2-50** | 120/240MB HDD | **1469/1619** |
| **486DX2-66** | 120/240MB HDD | **1579/1729** |

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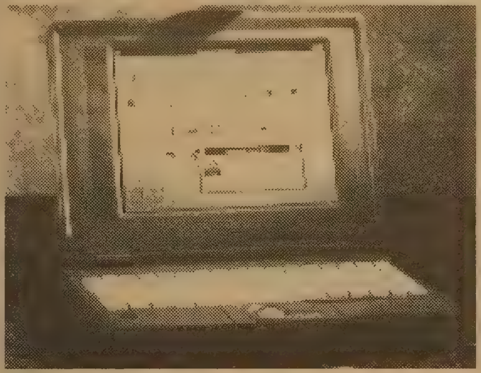


## Acer®

- ❑ MS-DOS 6.0
- ❑ MS-Windows 3.1
- ❑ Interlink transfer utility & cables
- ❑ Ultra VGA drivers
- ❑ Suspend utility
- ❑ 1 year 24-hour replacement in U.S.
- ❑ **Ergonomic palm rest w/ intergrated EasyTrac trackball**

### Acer Note 730 486SX/25:

Mono 4 MB RAM 120MB HDD .......... $1844

### Acer Note 750 486SL/25:

Mono 4 MB RAM 120MB HDD PCMCIA slots .......... $2087

### Acer Note 750C 486SL/25:

Active Color 4 MB RAM 120MB HDD PCMCIA slots .......... $3592

Active Color 4 MB RAM 200MB HDD PCMCIA slots .......... 3899

## NEC

### UltraLite® Versa™ 25C

COLOR 486SL

4MB RAM

180MB HDD

*Great Features:*

- ❑ **Built-in Local Video Bus**
- ❑ **Two PCMCIA Slots**
- ❑ **Removable Screen & HDD**

**ACCESSORIES AVAILABLE**

- ❑ 14.4/96 FAX MODEM
- ❑ 8MB UPGRADE
- ❑ DOCKING STATION
- ❑ ETHERNET PCMCIA
- ❑ STANDARD BATTERY
- ❑ NICAD BATTERY
- ❑ CARRYING CASE

- ❑ **INTEL** 486SL processor w/25MHz
- ❑ RAM exp to 20MB
- ❑ Brilliant color SVGA TFT active matrix display
- ❑ 64KB cache for enhanced performance
- ❑ Upgradable to pen system
- ❑ Up to 5 hours of battery life

**$3888**

VERSA **486SL/33MHz CALL!**

## COMMAX

486 DX2-66

- ❑ **Built-in trackball**
- ❑ Phoenix BIOS
- ❑ Built-in 3.5" FDD
- ❑ 9.5" screen
- ❑ Docking station interface
- ❑ Full function keyboard

### SMARTBOOK 486DX/33:

Mono 4 MB RAM 120MB HDD .......... $1829

### SMARTBOOK 486DX2/66:

Mono 4 MB RAM 120MB HDD .......... $2069

Mono 4 MB RAM 200MB HDD .......... 2299

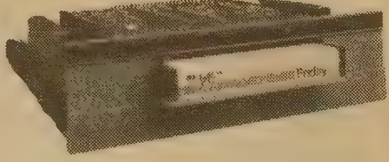
Active Color 4 MB RAM 120MB HDD .......... 3669

Active Color 4 MB RAM 200MB HDD .......... 3799

# *We'll BEAT Any Advertised Price!**

*Certain restrictions apply, see store for more details.

## Tape Backups



COLORADO MEMORY SYSTEMS INC.

### JUMBO Internal:

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| DJ-10 120MB | $119 |
| DJ-20 250MB | 168 |

### TRACKER External:

*Operates Off Parallel Port!*
*Ideal For Notebooks!*

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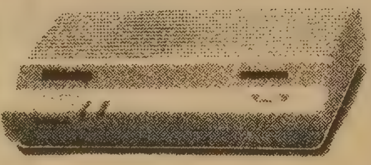
| JT-10 120MB | $288 |
| JT-20 250MB | 358 |

**USRobotics®**
The Intelligent Choice in Data Communications



**The Easy-To-Use Modem for People Who Think Like The Pros.**

*Sportster 14.4/14.4 Fax Modem*

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| Internal | $165 |
| External | 185 |

SUPER VALUE
Lowest Prices Ever!

*Sportster 14.4/96 Modem*

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| Internal | $159 |
| External | 179 |

SUPER VALUE
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## Hard Drives

*Reliable High-Performance Magnetic Drives to Meet Your Most Demanding Jobs!*

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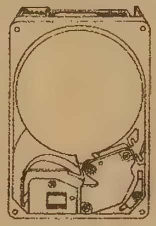
|---|---|
| Conner 124MB 16ms IDE | $179 |
| Maxtor 130MB 15ms IDE | 158 |



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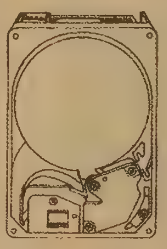
|---|---|
| Conner 170MB 15ms IDE | $179 |
| Maxtor 213MB 15ms IDE | 199 |



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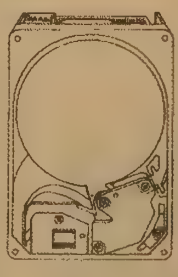
|---|---|
| Maxtor 240MB 15ms IDE | $198 |
| Conner 250MB 12ms IDE | 197 |
| Conner 340MB 13ms IDE | 248 |
| Maxtor 345MB 13ms SCSI | 358 |
| Maxtor 345MB 14ms IDE | 268 |



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|---|---|
| Conner 513MB 12ms IDE | $749 |
| Conner 540MB 10ms IDE | 488 |
| Maxtor 540MB 8.5ms SCSI II | 699 |
| Maxtor 540MB 8.5ms IDE | 699 |
| Maxtor 1.02GB 13ms SCSI | 969 |
| Maxtor 1.2GB 8.5ms SCSI II | 1149 |
| Maxtor 1.4GB 13ms SCSI | 1149 |

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**COMPUTER TECHNOLOGIES**

**2225 EL CAMINO REAL SANTA CLARA, CA 95050**

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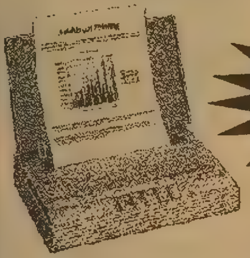
# Canon

## BJ-5 Portable Bubble Jet

*Identical to BJ-10ex!*



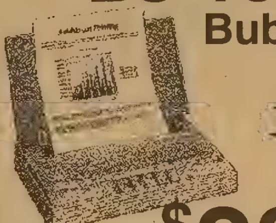
SAVE $110 COMPARED TO BJ-10EX!

Unit is remanufactured*

**$138**

- ❑ Prints up to 83cps ❑ Text & graphics up to360dpi
- ❑ Uses plain paper & transparencies ❑ 90-day warranty

## BJ-10ex Portable Bubble Jet



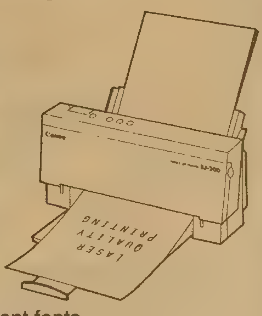
FREE Cut Sheet Feeder!

**$239**

- ❑ Prints up to 83cps ❑ Text & graphics up to360dpi
- ❑ Uses plain paper & transparencies ❑ 1 year warranty

## BJ-200 Desktop Bubble Jet

$30 Rebate



**$267***

- ❑ Prints up to 248cps ❑ 7 resident fonts
- ❑ 100-page sheet feeder ❑ Hold up to 10 envelopes

* Price after mfg's rebate, thru 12/31/93

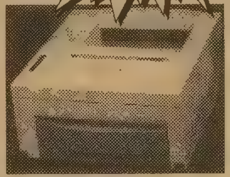
## LBP-430 Personal Laser Printer

**Environmentally Friendly...**

*Toner recycling program & Sleep mode for low power consumption!*

NEW

**$599**



- ❑ 4 pages per minute ❑ PCL 5 compatibility
- ❑ 1MB RAM exp to 5 ❑ 22 fonts-8 scalable fonts
- ❑ Super fine toner ❑ 2 year product warranty

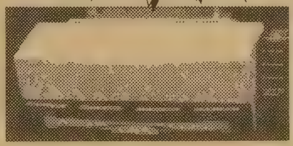
## BJC-600 Color Bubble Jet

**Brilliant Choice in *Color*...**

*Color Laser Quality Output at Ink Jet Price!*

NEW

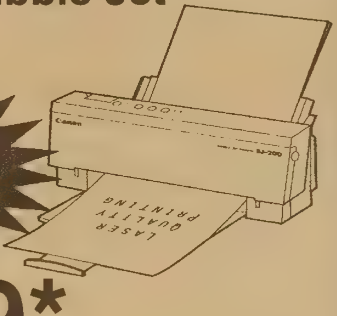
**$629**



- ❑ 360 dpi resolution ❑ 240cps draft, 170cps high qualtiy
- ❑ 64 nozzles per color ❑ 16.7 million colors available
- ❑ 100-sheet ASF ❑ 2 year product warranty

## BJ-230 Wide Carriage Bubble Jet

$30 Rebate



**$369***

- ❑ Prints up to 248cps ❑ 110 column, wide carriage
- ❑ 100-page sheet feeder ❑ Hold up to 10 envelopes

* Price after mfg's rebate, thru 12/31/93

## Canon NoteJet 486...

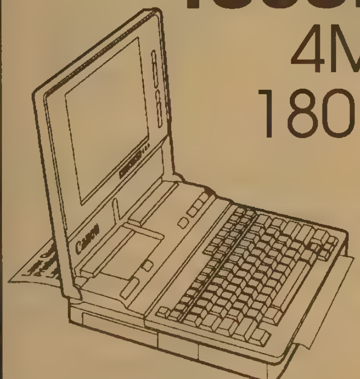
### Computer And Printer In One.

The NoteJet™486 is a full-featured 486 notebook with a built-in high resolution Bubble Jet™ printer!

**486SLC-25MHz**

4MB RAM

180 MB HDD



Other Models Available

**CALL!**

Entire system w/battery Weighs Only 7.7 lbs.

- ❑ Powerful Full-Featured 486 Notebook
- ❑ High Quality Bubble Jet™ Printer Built-In
- ❑ 2 PCMCIA Expansion Slots
- ❑ Built-In 10 Sheet Letter Feeder
- ❑ Preloaded DOS, Windows & NoteJet tutorial, and more...

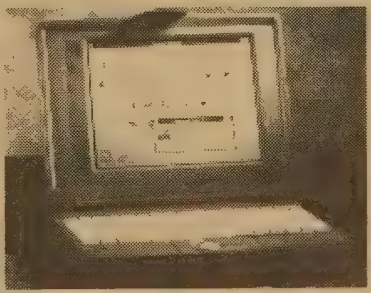
## Canon Innova 486NXM25...

*Fully Loaded!*

**486SX-25MHz**

4MB RAM

120 MB HDD



NEW!

**$1795**

- ❑ Powerful 486SX 25MHz
- ❑ 4MB RAM ❑ 120MB HDD
- ❑ Fax Modem ❑ Built-in trackball
- ❑ Preloaded Software: DOS 6.0, Windows, Works & MicroFax

# *Mobile Office Solution Source!*

## TOSHIBA

*Leader in Portable Computers!*

- ☐ **486SSX/20MHz**
- ☐ 1.44 MB 3.5" floppy
- ☐ DOS, Windows
- ☐ 1 PCMCIA expansion slot
- ☐ 1-year limited warrany
- ☐ **4MB RAM to 20MB**
- ☐ Ball Point mouse included
- ☐ Backlit LCD VGA
- ☐ Option Security Lock
- ☐ Advanced Power Management

### T1900™ 486SX *Notebook*

| | |
|---|---|
| 200MB Hard Drive Mono | $2198 |
| 120MB Hard Drive Mono | CALL |
| 120MB Hard Drive *COLOR* | 2648 |
| 200MB Hard Drive *COLOR* | CALL |

## Avanti

*NEW Affordable Color Notebook!*

- ☐ **486SLC-25MHz**
- ☐ 1.44MB 3.5" floppy
- ☐ DOS, Win, Fax software
- ☐ Fax Modem built-in
- ☐ Carrying Case
- ☐ **4MB RAM** exp to 20MB
- ☐ Built-in 2 button trackball
- ☐ Passive Matrix Color LCD
- ☐ Advance Power Management
- ☐ 1-year limited warranty

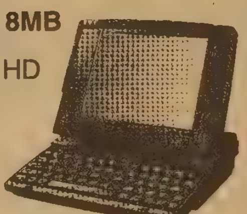
### Avanti® 425C *Notebooks*

| | |
|---|---|
| 120MB Hard Drive, 9600 Fax/2400 Modem | $2199 |
| 200MB Hard Drive, 9600 Fax/2400 Modem | 2449 |
| 120MB Hard Drive, 9600 Fax/14.4 Modem | 2499 |
| 200MB Hard Drive, 9600 Fax/14.4 Modem | 2699 |

## ARCHE
TECHNOLOGIES

*NEW ARRIVAL!*

### NP-602 Notebook $1499



- ☐ **486SSLC/33MHz**
- ☐ 1.44 MB 3.5" floppy
- ☐ DOS, WIN, Publish, Works
- ☐ Built-in 96/24 fax modem
- ☐ Carrying Case
- ☐ **4MB RAM exp to 8MB**
- ☐ Removable 80MB HD
- ☐ Backlit LCD VGA
- ☐ Built-in Trackball
- ☐ 1-year warranty

## OKI
PHONES

### OKI 900

- Store up to 200 phone numbers
- Convient built-in users guide
- Five NAMs for phone numbers
- Atuo answer system
- Remot feature access capability
- Auto credit card calling
- Up to 60 min talk time

$469

### OKI 1150

- Retractable antenna
- 100 memory locations
- Built-in jack for hands free usage
- Three NAMs for carrier service
- Two batteries included
- Three year warranty
- Data-capable for mobile office

$569

Authorized
**GTE Mobilnet**
Sales Representative
- **One-Point Billing**
- **Digital switching system**
- **Follow Me roaming service**

Ask for more details.

## MOTOROLA

*Receive up 800 minutes FREE!**

* Certain restriction apply, see store for details

### Tote Phone

The new Tote phone offers 30 number and 3 watts of power w/7-Digit LCD display

$178

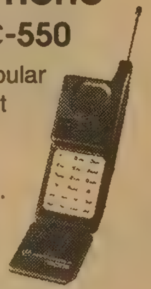
### Handheld
8000-HX

The most popular handhel phone allows you to talk up to 90 minutes & keep up to 30 numbers!

$198

### Flip Phone
DPC-550

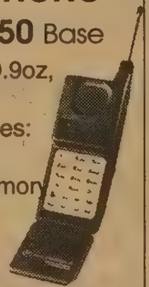
The most popular flip phone last up 100 min of talk time & 30 # memory. Case & over night charger included!



$288

### Flip Phone
DPC-950 Base

Weight only 9.9oz, this phone is pack w/features: 101 alpha numberic memory 100 min talk time battery & charger!



$318

### Micro TAC Lite
Base

This 7.7oz phone give you the state of the art performance: 45-min talk time 100 # alpha numberic memory & charger!

$488

### Ultra Lite
w/Vibra Call

This lightest phone available weighing 5.5oz.! 100 # memory will VIBRATE to alert an incoming call silently!

$745

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**COMPUTER TECHNOLOGIES**

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## CPU COOLING FAN

**Increase performance and extend the life of your CPU!**

$\$12^{99}$ #ICFAN

## FLOPPY DRIVES

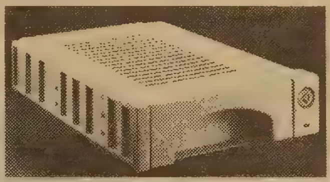
by TEAC

| | | |
|---|---|---|
| 3.5" 1.44MB | $38 | #DSF145T |
| 5.25" 1.2MB | $48 | #DSF005T |

## MOBILE HDD RACK

**Fits all 3.5" IDE Hard Drives**

Allows easy installation & removal of hard drives. The perfect way to protect & transport all your valuable data!



$39 #HDA001

## SIMM MODULES

| | |
|---|---|
| 1MBx9 60ns | $CALL |
| 1MBx9 70ns 3 chip | CALL |
| 1MBx9 70ns 9 chip | CALL |
| 256Kx9 70ns | CALL |
| 4MBx9 60ns | CALL |
| 4MBx9 70ns | CALL |

## MATH COPROCESSORS

intel **Instant acceleration for your power applications.**

| | |
|---|---|
| 80387SX | $CALL |
| 80387DX | CALL |
| 80387SL | CALL |

## CPUs

intel **High Quality Chips!**

| | |
|---|---|
| 486DX2-50 | $CALL |
| 486DX2-66 | CALL |
| 486-33 | CALL |
| 486-50 | CALL |

## JOY STICKS

**by BONDWELL**

**INTRUDER**

$\$19^{99}$

**AVIATOR**

$\$26^{99}$

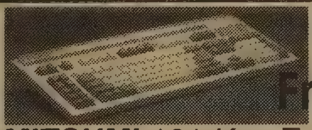
## CASES

| | |
|---|---|
| Baby Desktop 200W | $75 |
| Full Desktop 285W | 99 |
| Mini Tower 200W | 79 |
| Medium Tower 200W | 85 |
| Full Tower 220W | 109 |
| Super Tower 300W | 149 |

## I/O & IDE CARDS

| | |
|---|---|
| AT I/O 2S/1P/1G | $19 |
| IDE Controller | 19 |
| IDE w/ 2S/1P/1G | 29 |
| VLB IDE w/ 2S/1P/1G | 69 |
| VLB IDE Cache Controller | 199 |

## KEYBOARDS



From... $19

| | |
|---|---|
| **MITSUMI** 101-Key Enhanced | $19 |
| **MAXISWITCH** 101-Key | 39 |
| **KEYTRONIX** 101-Key | 39 |
| **SUNTOUCH** ALPS 101-Key | 57 |
| **SUNTOUCH** Junior | 54 |
| **PROXELLENT** Programmable | 99 |
| **MAXI PRO II** 124-Key | 78 |
| **FOCUS** | |
| 2001 101-Key w/dustcover | 39 |
| 3001 w/calculator | 49 |
| 8000 soft click w/calculator | 48 |
| 9001 129 Key programmable | 68 |
| **NORTHGATE OMNIKEY** | |
| 102 | 79 |
| Ultra T | 99 |
| Ultra F | 99 |
| Skin Protector for Northgate | $19^{95}$ |

## UPS'

Prevent Lost Data...
With an Uninterrupted Power System

| | |
|---|---|
| 250VA | $195 |
| 550VA standby w/Novell adapter | 229 |
| 300VA | 349 |
| 1250VA w/ Indicator | 489 |

## FAX•MACHINES

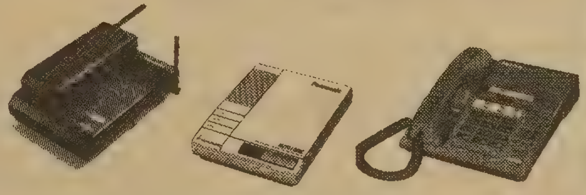
From... $199

| | |
|---|---|
| Tote-Vision HF-200 | $199 |
| **w/CUTTER:** | |
| Muratec M910 | 339 |
| BellSouth 3400 | 329 |
| Brother Intellifax 700 | 429 |
| Panasonic KX-F230 w/ ans. Machine | 469 |
| Brother Intellifax 800M w/**MEMORY** | 499 |

## TELEPHONE

**Panasonic**

From... $\$59^{95}$



| | |
|---|---|
| KX-T2100 Dual cassette ans. machine | $\$59^{95}$ |
| KX-T2720 Intergrated phone | $139^{00}$ |
| KX-T3165 2-Line Speaker phone | $75^{00}$ |
| KX-T3170 3-Line phone | $129^{99}$ |
| KX-T3175 2-Line LCD w/Ans. machine | $79^{95}$ |
| KX-T3848 Upright Cordless phone | $75^{00}$ |
| KX-T3910 Cordless phone | $115^{00}$ |
| KX-T3950 10CH. Cordless w/Speakerphone | $118^{00}$ |
| KX-T4000 490MHz Pocket Cordless phone | $166^{00}$ |
| KX-T4330 Cordless w/Ans. machine | $137^{55}$ |
| KX-T8000 ALL DIGITAL ans. machine | $169^{00}$ |
| KX-T9000 900MHz Pocket Cordless phone | $299^{00}$ |

# Complete Multimedia Solution Center

CREATIVE
CREATIVE LABS, INC.

## DISCOVERY CD™ 16
Upgrade Kit

- ☐ Sound Blaster 16 Sound Card
- ☐ Internal Double-Speed CD-ROM drive
- ☐ Creative Labs Stereo Speakers
- ☐ Software: PhotoStyler SE, The Animals Toolworks Multimedia Encyclopedia Where in the World is Carmen Sandiego Just Grandman And Me.
- ☐ Windows 3.1 and MPC compatible

NEW!

$399

## EDUTAINMENT CD™ 16
Upgrade Kit

- ☐ Sound Blaster 16 Sound Card
- ☐ Internal CD-ROM drive
- ☐ Stereo Speakers
- ☐ Software: Toolworks' Encyclopedia, The Animals, Secret Weapons of the Luftwaffe, Money Island, Loom, Carmen Sandiego & More...

$469

## Sounds, Video, Upgrade Kits

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|---|---|
| Sound Blaster Deluxe | $68 |
| Sound Blaster Pro Deluxe | 109 |
| Sound Blaster 16 | 198 |
| Sound Blaster 16 ASP | 199 |
| Video Blaster | 308 |
| Multimedia Starter Kit Internal | 377 |
| Multimedia External Upgrade Kit | 519 |

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|---|---|
| Microphone | $13 |

*Shielded Stereo Speakers:*

| | |
|---|---|
| **80 Watt** Speakers ADS980 | 69 |
| **25 Watt** Speakers ADS925 | 44 |
| **6 Watt** Speakers ADS906 | 14 |
| **4 Watt** Speakers ADS902 | 24 |

MEDIA VISION

## FUSION CD 16
SUPER BUNDLE!

- ☐ SONY internal CD-ROM Drive
- ☐ 4 Top CD Library Titles
- ☐ Pro Audio Spectrum 16 Sound Card
- ☐ Two Labtec Stereo Speakers
- ☐ And More...

$468

## FUSION DOUBLE CD 16

NEW!

FAST BUNDLE!

- ☐ Multisession Double Speed
- ☐ NEC internal CD-ROM Drive
- ☐ 350ms access time
- ☐ **4** Top CD Library Titles
- ☐ Pro Audio Studio Sound Card
- ☐ And More...

$599

## PRO 16 MULTIMEDIA SYSTEM II

EXTREMELY FAST!

- ☐ Multisession Double Speed
- ☐ NEC internal CD-ROM Drive
- ☐ 250ms access time
- ☐ **8** Top CD Library Titles
- ☐ Pro Audio Studio Sound Card
- ☐ And More...

$859

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|---|---|
| Pro 16 Multimedia System | $678 |

**Pro Audio Spectrum 16** **$159**

HOT!

| | |
|---|---|
| Pro Movie Spectrum | $288 |
| Pro Audio Studio 16 | 219 |

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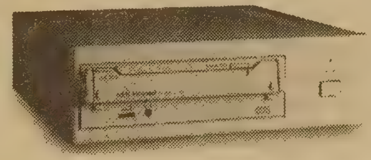
# CD-ROM DRIVES

**FREE CD-ROM Installation w/purchase!**



**SONY**
CDU31A Internal
490ms Access Time
$138

**CD CADDY** $6.99

**PANASONIC**
562 Internal
320ms Access Time
$248

**NEC**
*Triple Speed MultiSpin Reader*
CDR-500 Internal
FAST! $479
CDR-600 External
$569

**NEC**
*Double Speed MultiSpin Reader*
CDR-84-1 Internal
FAST! $399
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FAST! **TOSHIBA**
XM3401 Internal
**200ms** Access Time
$364
EXTERNAL $538

FAST! **TEXEL**
DM-3024 Internal
**265ms** Access Time
$338

## Hundreds of CD-ROM Software to Choose From... For Example:

### EDUCATIONAL TITLES:

## Titles from $13...

| | |
|---|---|
| Animals 1.0 San Diego Zoo | $21 |
| Atlas Pac V3.1/3.01 World/US | 26 |
| Barron's College Guide | 26 |
| **Bring the World to Your Senses** | **13** |
| **CD Deluxe** | **44** |
| CIA World FactBook | 25 |
| Composer Quest | 29 |
| Compton's Family Encyclopedia MPC | 37 |
| Desert Storm MPC | 22 |
| Dictionary of the Living World | 31 |
| Dinosaur Adventure | 27 |
| Electronic Home Library | 29 |
| **Family Doctor** | **23** |
| **Family Education Collections** | **22** |
| Great Cities of the World vol. 1 | 22 |
| Great Cities of the World vol. 2 | 22 |
| Guinness Book of Records MPC | 25 |
| Jets & Props | 25 |
| **Kodak Photo CD Access** | **17** |
| Language of the World | 34 |
| Library of Future | 54 |
| MacMillian Children's Dictionary | 34 |
| Mavis Teaches Typing | 25 |
| **Mayo Clinic Family Health Book** | **25** |
| Microsoft Bookshelf | 44 |
| National Geo Mammal | 25 |
| National Park | 22 |
| Mixed Up Mother Goose | 22 |
| Playing with Language English | 27 |
| Playing with Language French | 27 |
| Playing with Language German | 27 |
| Playing with Language Japanese | 27 |
| Playing with Language Spanish | 27 |
| Presidents | 98 |
| The Right College | 19 |
| Shakespeare | 16 |
| Sound Library | $17 |
| A Survey of Western Art | 30 |
| Tempra Access Photo | 18 |
| TIME Almanac 1991 | 21 |
| Toolworks Encyclopedia | 52 |
| USA Wars: Civil War | 36 |
| USA Wars: Korea | 36 |
| USA Wars: WW II | 36 |
| USA Wars: Vietnam DOS | 18 |
| **US History** | **26** |
| Vital Signs | 98 |
| WINWARE vol 1 & 2 | 22 |
| World Atlas v3.2 | 18 |

### FUN AND GAMES:

## Titles from $14...

| | |
|---|---|
| Arthur's Teacher Trouble | $29 |
| Arthur's Star for Windows | 54 |
| Beyond The Wall Of Stars | 26 |
| **Carmen San Diego** | **25** |
| CD StoryTime | 19 |
| **CD Game Pack II** | **25** |
| Chessmaster 3000 | 21 |
| Interactive Storytime Vol. 1 | 25 |
| Jones in the Fast Lane | 21 |
| **Killer Track CD-Music Library** | **18** |
| King's Quest V | 21 |
| Loom | 21 |
| Macromedia Action for Windows | 34 |
| Mantis Experimental Fighter | 18 |
| Mario Is Missing | 25 |
| MIDI Music Shop | 22 |
| Monkey Island | 24 |
| Multimedia Audubon's Mammals | 18 |
| Sherlock Holmes Consulting Det. | 19 |
| Sleeping Beauty | 22 |
| **So Much Shareware I** | **14** |
| **So Much Shareware II** | **$19** |
| Space Adventure | 22 |
| Sports Best | 21 |
| Stellar 7 | 26 |
| **The 7th Guest MPC** | **79** |
| The Shareware Concept | 17 |
| Whale of Tale | 87 |
| Who Killed Sam Rupert | 27 |
| Wizard MPC | 17 |
| PC Graphic & Sound Demo | 17 |
| Peter and the Wolf | 18 |
| Reference Library | 22 |
| Renaissance Masters I MPC | 30 |
| SFX-300 Sound Effects | 17 |

### BUSINESS TITLES:

## Titles from $19...

| | |
|---|---|
| American Business Phone Book | $19 |
| DTP Pro | 22 |
| Lotus 1-2-3 | 102 |
| Marketing Master 1992 | 21 |
| Media clips 4 pack | 49 |
| Microsoft Works | 48 |
| Publish It 2.0 | 26 |
| Q & A Symantec DOS 4.0 | 34 |

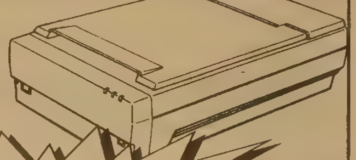
### MACINTOSH TITLES:

## Titles from $23...

| | |
|---|---|
| Animals | $22 |
| Atlas Pack US/World | 23 |
| Color It | 23 |
| Grolier Encyclopedia | 64 |
| Guinness Book of Records | 27 |
| Lucas Game Pack | 23 |
| Mayo Clinic Health Book | 27 |
| Publish It | 26 |
| Sherlock Holmes | 23 |

# *Complete Accessories & Peripherals Center*

## *Scanners...*



**EPSON®**

NEW!

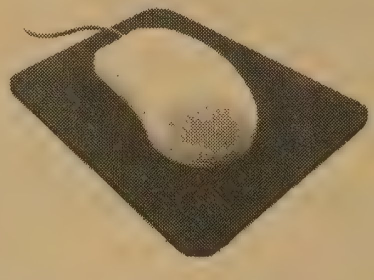
***Flatbed scanner w/interface kit***

| | |
|---|---|
| ES-600C Color 600dpi | $799 |
| ES-600C Macintosh version | 829 |
| ES-800C Color 800dpi | 1295 |

## Microsoft Mouse

*Fits the Way You Work-*
*with Ergonomic Comfort!*

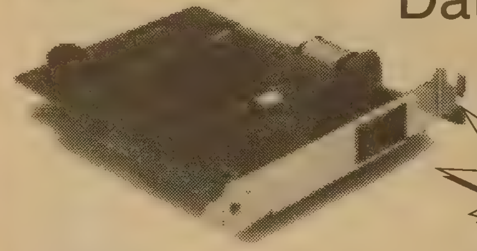
NEW!



**$69^99** Serial version

PS/2 version $89

**WANG** *2400i* Plus Internal Data Modem



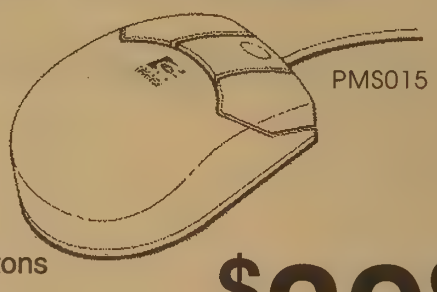
**$19**

- ☐ 2400bps
- ☐ RPI Based V.42 bis, MNP 2-5
- ☐ Easy-to-use Menus
- ☐ Includes Communications Software
- ☐ 10 Year Limited Warranty

LOGITECH

## MouseMan™

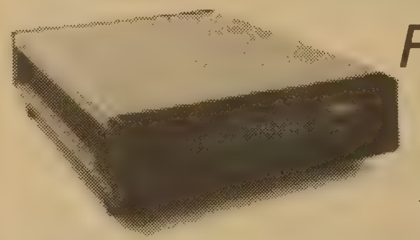
**Serial PS/2 Mouse**



- ☐ 400dpi reolution
- ☐ 3 programmable buttons
- ☐ Ergonomic design
- ☐ MouseWare utilities
- ☐ Windows 3.1 compatible

**$39^99**

*9648/24e External Fax Modem*



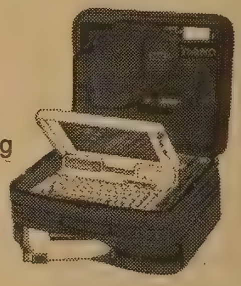
**$39**

- ☐ 9600S/4800R-2400bps Data
- ☐ RPI Based V.42 bis, MNP 2-5
- ☐ CCITT T.30 Group 3 Protocol
- ☐ Includes Comm. & Fax Software
- ☐ 10 Year Limited Warranty

**RHINO**™

Notebook/Laptop Carrying Case

Hard Protection/Soft Bag



CELLULAR ARMOR A high density thermoplastic with a double-wall honeycomb design which elastically diperses any shock. It protects valuable equipment from damage, shooting the shock out and away, and it is also a great insulator against the heat and cold.

12 Models In stock!

Starting from... **$29^99** Model AC-21

## *discwasher®*

***CleanPath™***

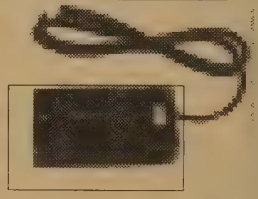
**Computer Controlled Maintenace Kit**

CleanPath is the first computer controlled maintenace system. With this kit, you don't have to remember when to clean; you computer does it for you. When it time to clean. The complete kit cleans monitor, floppy drives, keyboard and printer.

- **5 .25" PC version**
- **3.5" PC version**
- **5.25" & 3.5" PC version**
- **3.5" MAC version**

**Each Kit for only... $8^99**

## *discwasher®*



***SpikeMaster™***

**Surge Supression Module**

Model #**1611**

Four-outlet (2x2) floor or table module provides RFI filtering capability. 6-foot SJT insulated line cord. UL approved

**$6^99**

**XSP1611**

Model #**1618**

Four-outlet (2x2) protect computers & all audio/video equipment aginst surge. Reduces power line noise w/5-part EMI/RFI filtering.

**$8^99**

**XSP1618**

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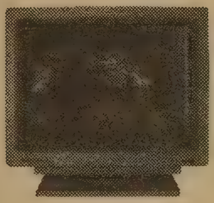
## NANAO

### 17" SVGA Monitor

**F550i**

SAVE $150!



**$899***

- ☐ 1280x1024 ☐ .28dot pitch
- ☐ Flat screen w/analog RGB input
- ☐ 1 year warranty
- ☐ Monitor is remanufactured*

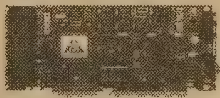
| | | |
|---|---|---|
| **9080i** | 16" 1024, .28 | $868 |
| **550iW** | 17" FLAT screen | 1150 |
| **T560i** | 17" 1280, .26 | 1689 |
| **T660i** | 20" 1280, .30 | 2399 |
| **F750i** | 20" 1280, .31 | 1950 |
| **760iW** | 21" 1280, 76Hz | 2089 |

## GRAPHIC•CARDS

**ATi**

| | | |
|---|---|---|
| **Ultra+** | 1MB/2MB DRAM | $209/239 |
| **UltraPro** | ISA 1/2MB VRAM | 329/339 |
| **UltraPro** | VLB 1/2MB VRAM | 299/349 |

ORCHID



| | | |
|---|---|---|
| **ProDesigner IIs** | 1MB/ | $116 |
| **FAHRENHEIT VA** | ISA/VLB | 179/185 |
| **FAHRENHEIT +** | ISA/VLB | 125/135 |

DIAMOND Computer Systems, Inc.

PC WORLD BEST BUY · PC MAGAZINE Editor's Choice · BYTE · TOP 100 PC

| | | |
|---|---|---|
| **StealthPro** | ISA 1MB/2MB | $249/299 |
| **StealthPro** | VLB 1MB/2MB | 259/359 |
| **Stealth 24 VLB 1MB** | | 189 |
| **SpeedStar VLB Pro 24** | | 129 |
| **Viper VLB 2MB** | | 429 |

## NEC

### MultiSync® 3V Monitor

NEW

- ☐ 15", .28mm flat square CRT
- ☐ 1024x768 at up to 60Hz
- ☐ Energy Star compliance
- ☐ 3 year warranty

**$529**

### *Professional Series*

| | | |
|---|---|---|
| **5FGp** | *NEW!* 17" 1024, .28 | $1399 |
| **6FGp** | *NEW!* 20" 1280, .28 | 2399 |

### *Business/Home Series*

| | | |
|---|---|---|
| **SVGA** | 14" 1024, .28 | $329 |
| **3FGe** | 15" 1024, .28, 60Hz | 588 |
| **4FGe** | 15" 1024, .28,76Hz | 698 |
| **5FGe** | 17" 1024, .28 | 1088 |
| **6FGe** | 20" 1280, .28 | 2398 |

## *Impression®*

| | | |
|---|---|---|
| **3439** | 14" 1024, .39 | $219 |
| **3428** | 14" 1024, .28 | 269 |
| **3472N** | 14" 1024, .28, 72Hz | 299 |
| **1726N** | 17" 1024, .26 | 888 |

## EPSON®

| | | |
|---|---|---|
| **14"** | 1024X768, .28 | $299 |
| **17"** | 1024X768, .28 | 949 |

## Panasonic
Office Automation OA

### C1795E 17"SVGA Monitor

Mac/PC Compatible

- ☐ 1280x1024 resolution
- ☐ .28mm dot pitch
- ☐ Optional Mac Connect available

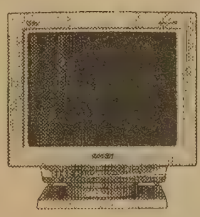
**$1169**

| | | |
|---|---|---|
| **C1381i** | 14" 1024, .28 | $329 |
| **C1395** | 14" 1024, .28 N/I | 419 |
| **C1991** | 20" 1280, .31 | 1499 |

## SONY

### 1304s Non-Interlaced SVGA Monitor

Lower Price



**$459**

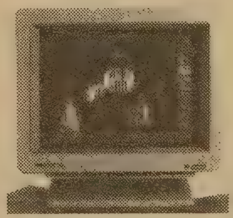
- ☐ 1024x768 resolution
- ☐ .25mm dot pitch
- ☐ 14" Trinitron tube
- ☐ 28-50Hz Vertical Scan Frequency Range

| | | |
|---|---|---|
| **CPD-1320** | 14" 640, .25 | $339 |
| **CPD-1430** | 14" 1024, .25 | 595 |
| **CPD-1730** | 17" 1024, .28 | 978 |
| **GDM2036** | 20" 1024, .30 | 1993 |
| **GDM2038** | 20" 1024, .25 | 2299 |

## ViewSonic™

### 17" SVGA Monitor

**ViewMatch™ Color Control**



**$1069**

- ☐ Up to1280x1024 ,76Hz refresh
- ☐ .28mm dot pitch
- ☐ 30-82 kHz scan frequency
- ☐ Analog RGB input

| | | |
|---|---|---|
| **1** | 14" 640, .39 | $239 |
| **4e** | 14" 1024, .28 Interlaced | 319 |
| **5e** | 14" 1024, .28 Non-Interlaced | 399 |
| **6e** | 14" 1024, .28 72Hz | 329 |
| **6FS** | 15" 1024, .28 | 555 |
| **15** | 15" 1280, .28 | 498 |
| **20** | 20" 1600, .28 | 1794 |

# *Authorized* NEC *Sales & Service Center*

# NEC

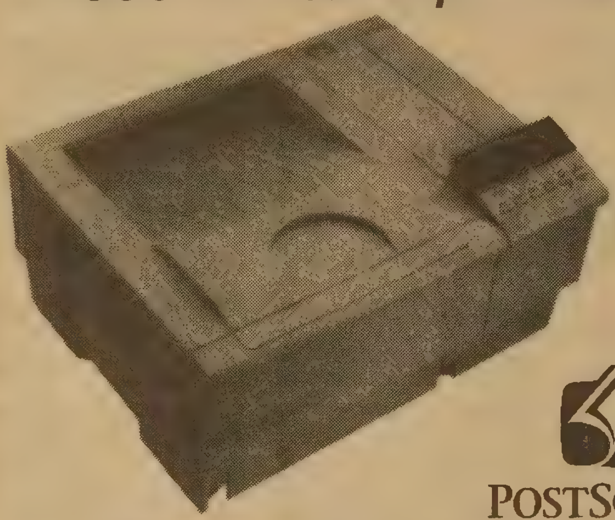
•600DPI
•POSTSCRIPT II
•HP PCL 5

NEW!

## Silentwriter® 1097

***Shared or Dedicated, There's No Better 600 DPI PostScript™ Printer Value!***

$1499



POSTSCRIPT™

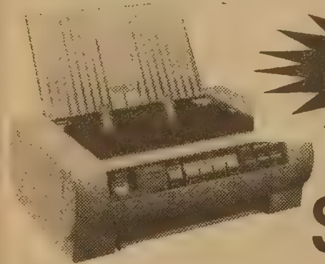
Silentwriter is a registered trademark of NEC Technologies, Inc.

- ☐ 600DPI PostScript Printer
- ☐ Adobe PostScript Level 2
- ☐ HP III (PCL5) Emulation
- ☐ 10 Pages Per Minute
- ☐ 7 MB RAM Memory
- ☐ PhotoMatch™ Gray-scaling
- ☐ High-speed RISC Processor
- ☐ 250 Sheet Paper Tray
- ☐ Microfine Toner
- ☐ Built-in Convenience Tray
- ☐ Built-in Auto Emulation
- ☐ Includes AppleTalk™
- ☐ Optional 2nd Tray
- ☐ Optional Ethernet® & Token Ring

## Jetmate™ 1000 Thermal Ink Jet

**High Quality Output... At a Budget Price.**

*Small & Compact 12.5 lbs.*



NEW!

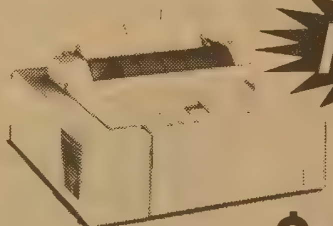
$269

- ☐ 300dpi, 300 cps in LQ mode
- ☐ 20 Free TrueType fonts
- ☐ Built-in 100 page feeder
- ☐ Prints legal & envelopes
- ☐ 128K RAM
- ☐ HP Deskjet emulation
- ☐ Windows 3.1 driver included
- ☐ 2 year parts & labor

## Silentwriter® SuperScript 610

**Personal Laser Designed for Microsoft Windows Users!**

NEW!



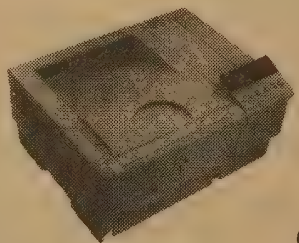
$629

**Host Based Printing Using, CPU Processing Power!**

- ☐ 300dpi, 6ppm
- ☐ 34 scalable Truetype fonts
- ☐ GDI plus PCL 4
- ☐ Energy Star compliant
- ☐ 2 year overnight replacement

## Silentwriter® 95f

***Get The Perfect Deal On The Laser Printer That's A "Perfect 10"***



POSTSCRIPT™

$949

***MAC Compatible!***

- ☐ 6 PPM, 2MB RAM exp. to 5MB
- ☐ 35 scalable Adobe fonts
- ☐ 14 bitmap & 8 scalable HP fonts
- ☐ HP LaserJet III w/PCL-5 emulation
- ☐ Auto Interface Monitoring for easy sharing

**Silentwriter® 97** 10ppm RISC **$1299**

Silentwriter is a registered trademark of NEC Technologies, Inc.

# ACCESS COMPUTER TECHNOLOGIES 408-247-4444

**2225 EL CAMINO REAL SANTA CLARA, CA 95050**
Not responsible for typos / Price subject to change w/o notice / Price good through 11/14/93

## FUJITSU

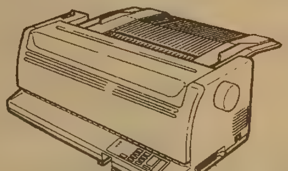
PrintPartner
*Portable*

*Folds up to ONLY 1" Thick! Weights only 2.6lbs.!*

**$299**

- ☐ 360x360 dpi resolution
- ☐ IBM & EPSON emulation
- ☐ Plain Paper & transparencies printing
- ☐ Optional colored reibbon cassettes
- ☐ Optional Cut Sheet Feeder for $89

## FUJITSU



**DL1200**

*Ideal for Business & Home Office!*

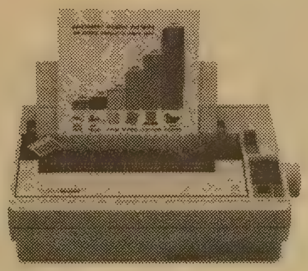
**$289**

- ☐ 200cps for high-speed draft
- ☐ Fujitsu, IBM & EPSON emulation
- ☐ 136-column printer line
- ☐ 24-wire print head for crisp output
- ☐ Small foot print design occupies less space

## CITIZEN

*SPECIAL PURCHASE! BRAND NEW!*

**200GX DOT MATRIX PRINTER**

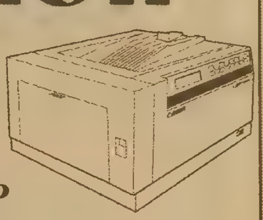


**$129**

COLOR OPTION $40

- ☐ 9-pin printer
- ☐ 5 built-in fonts
- ☐ Paper parking
- ☐ 240cps
- ☐ Fontlocking feature
- ☐ 2 year limited warranty

## Canon



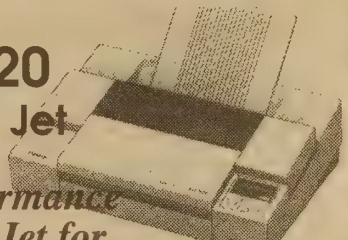
**LBP-4sx Laser Printer**

*Same as HP IIIP for $230 less!*

- ☐ 4 pages per minute
- ☐ 1MB RAM, PCL-5
- ☐ Auto emulating switching
- ☐ Printer sharing capability

**$639**

## Canon



**BJC-820 Color Ink Jet**

*High Performance Color Ink Jet for the Professionals!*

- ☐ 4 pages per minute
- ☐ 1MB RAM, PCL-5
- ☐ Auto emulating switching
- ☐ Printer sharing capability

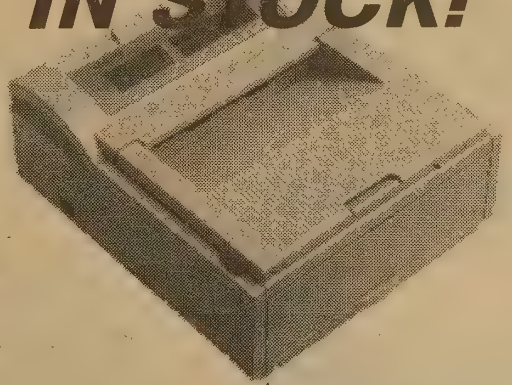
**$1599**

## OKIDATA® *LED Page Printers*

OKI OK!

NEW!

**IN STOCK!**



## OL400e.

**In a Class By Itself**

*The Best Value in Personal Printers*

- ☐ Compact size and sleek design fits comfortably on any desktop
- ☐ Fast 4ppm printing with RISC microprocessor for higher productivity
- ☐ 44 fonts for great-looking correspondence and reports
- ☐ Perfectly compatible with virtually all software applications

**$499.99**

THE OKIDATA® FLIGHTPLAN
UNITED AIRLINES

| Discount Certificate Amount | $25 | $50 | $100 ($50/$50) |
|---|---|---|---|
| Printer Model Applicable | ML380 | ML590<br>ML591<br>OL400e | ML395/C<br>OL810<br>OL830 Plus<br>OL850 |
| Discount Value | Valid for tickets valued at $200+ | Valid for tickets valued at $300+ | Valid for two $50 discounts for 2 tickets each valued at $300+, tickets must be purchased together, but different passengers & different itineraries are allowable. |

Offer ends 12/31/93

OKIDATA Reg. T.M., M.D.; OKI Electric Industry Co., Ltd.; Windows T.M., Microsoft Corp.

**9-PIN**

- •ML-320/321 300cps .................. $319 /459
- •ML-520/521 auto form sensing .. 388 / 519
- •ML-3410 Fast 550cps! 8-part forms ..... 1288

**24-PIN**

- •ML-380 192cps, 63cps .......................... 229
- •ML-590/591 auto form sensing ....... 469/599
- •ML-395 NEW! Fast 607cps 5-PART FORMS .. 988

# FREE Printer Stand w/Dot Matrix

*W/ ANY DOT MATRIX PURCHASE XTP004

**20% OFF** *List Price
**Printer Accessories!**
In Stock Items Only

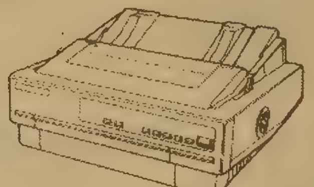
ESC/P2™ EPSON SCALABLE FONTS • ENHANCED GRAPHICS

# EPSON®

WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

**$50 REBATE!**

## LQ-570+



***NEW!***
***Faster***
***w/ more fonts!***

**$238**

- ☐ 24-pin, 337cps
- ☐ 14 built-in fonts
- ☐ 2 year warranty

| | |
|---|---|
| **AP-2250/3250** *9-pin / 24-pin 80 column* | $123178 |
| **LX-810** *9-pin 80 column* | 169 |
| **FX-870/1170** | 279/359 |
| **DFX-5000** *9-pin SUPER FAST 530cps!* | 1350 |
| **DFX-8000** *9-pin SUPER FAST 1066cps!* | 2299 |
| **LQ-870/LQ-1070** | 469/398 |
| **LQ-1170** | 609 |
| **LQ-2550** 400cps | 899 |

## *STYLUS* 800 INK JET PRINTER

PCComputing HARDWARE 200 1993 TOP RATED

MAY 1993 BYTE BEST VALUE GRAPHIC ARTS PRINTER

The look of laser printing
at an affordable price.

**Replacement Ink Cartridge**
PTE800C
**$19⁹⁵**

**$288***

*STYLUS* 300 Ink Jet $249

☐ Fast 150cps ☐ Crisp 360 dpi laser quality
☐ 7 typefaces w/ 4 scalable fonts ☐ Quiet 45dBA
☐ Compact footprint ☐ 100-sheet plain paper tray
☐ Prints envelopes with ease ☐ 2 year warranty

*Price reflects a $50 end-user mail-in mfr's. rebate, valid thru 10/31/93

***NEW!***

# EPSON®

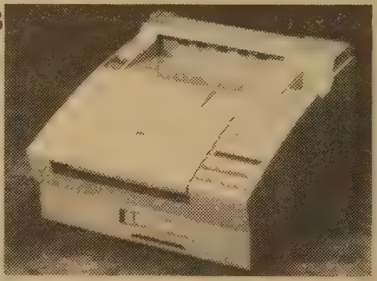
WHEN YOU'VE GOT AN EPSON,
YOU'VE GOT A LOT OF COMPANY™

## ActionLaser 1500

***Scalable!***

**$678**

- ☐ 6ppm ☐ 1MB Ram exp. to 5MB
- ☐ 14 resident, 13 scalable fonts
- ☐ 1 cartridge slot
- ☐ 150-sheet universal tray
- ☐ HP III/IIIsi, PCL-5 emulation
- ☐ 2 year warranty



## ActionLaser 1000

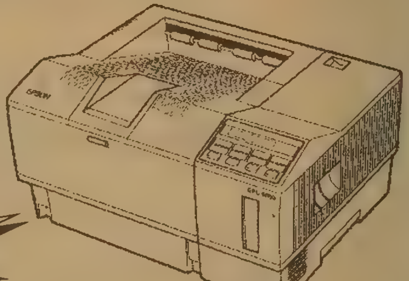
- ☐ 6ppm
- ☐ 512K Ram exp. to 6.5MB
- ☐ 14 standard fonts
- ☐ 1 cartridge slot
- ☐ 150-sheet universal tray
- ☐ HP IIP, PCL-4 emulation
- ☐ 2 year warranty

**$599**

## EPL-8000

***Great Features Such as:***
***-Scalable Fonts***
***-Printer Sharing***
***-And More...***

***TWICE AS FAST AS HP IIIP (4ppm) FOR LESS!***



**$868**

- ☐ 10ppm ☐ 1MB RAM exp. to 7.5MB
- ☐ PCL-5, 13 scalable fonts
- ☐ Includes RITech for crisp, sharp images
- ☐ Built-in printer sharing ☐ 2-year warranty

# ACCESS COMPUTER TECHNOLOGIES 408-247-4444

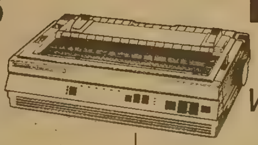
2225 EL CAMINO REAL SANTA CLARA, CA 95050
Not responsible for typos / Price subject to change w/o notice / Price good through 11/14/93

SAVE $150

## Panasonic Office Automation

**KX-P150** Ribbon for KX-P2000 series printer $6.99

## KX-P1123



*The Lowest Letter Quality Available Today!*

$149

❑ 24-pin ❑ 240cps, 63cps LQ
❑ 7 built-in fonts ❑ 2 year warranty

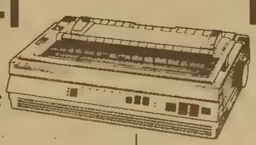
## KX-P1624

*The Most Affordable Wide-Carridge Printer Available!*

$249

❑ 24-pin ❑ 192cps, 63cps LQ
❑ 7 built-in fonts ❑ 2 year warranty

## KX-P1124i



*The Most Reliable Heavy Duty Business Printer Available!*

$189

❑ 24-pin ❑ 300cps, 100cps LQ
❑ 11 built-in fonts ❑ 2 year warranty

## KX-P2123

*A Quiet Printer Offering a Color Option!*

$179

❑ 24-pin ❑ 240cps, 80cps LQ
❑ 6 built-in fonts ❑ 2 year warranty

*THESE ARE FACTORY REMANUFACTURED & FULLY GUARANTEED

DOT MATRIXPRINTERS

| | | |
|---|---|---|
| **KX-P1124i** | 24-pin, 300cps, 11 fonts | $249 |
| **KX-P1150** | 9-pin, 240cps, 7 fonts | 139 |
| **KX-P1695** | 9-pin, 330cps wide carriage | 349 |
| **KX-P1624** | 24-pin, wide carriage | 329 |

### The *QUIET* Series Printers

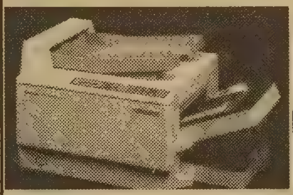
*Come Hear the Difference!* **43.5 dBA!**

**2100 series Color Option $49.95**

| | | |
|---|---|---|
| **KX-P2023** | 24-pin, 240cps, 7 fonts | $189 |
| **KX-P2123** | 24-pin, 240cps , 6 fonts | 229 |
| **KX-P2180** | 9-pin, 240cps, 6NLQ fonts | 155 |
| **KX-P2624** | 24-pin, 300cps, 11 fonts | 378 |

## KX-P4450i

**Laser Printer**



NEW LOWER PRICE!

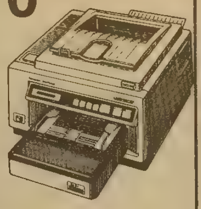
*11ppm!* $899

❑ 512K RAM exp to 4.5MB
❑ 250 sheet paper capacity
❑ 300 dpi resolution ❑ 11 PPM

## KX-P4410

**Laser Printer**

*5ppm!*



*FREE Adobe Type Manager!*

NEW LOWER PRICE!

$555

❑ 512K RAM exp to 4.5MB
❑ 200 sheet paper capacity
❑ 300 dpi resolution ❑ 5 PPM

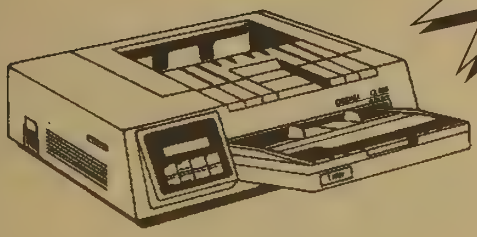
**KX-P4430** $649

## OKIDATA®

## *OL400 LED Page Printers*

*SAVE $50!*

$479



❑ 300dpi, resolution
❑ 200 sheet paper tray
❑ 17 resident fonts
❑ 5 year printhead warranty
❑ 4 pages per minute
❑ 512K exp. to 2.5MB
❑ HP II emulation

## HEWLETT PACKARD

| | | |
|---|---|---|
| **DeskJet 500** | Ink Jet | $298 |
| **Portable Ink Jet** | NEW! | 399 |
| **IIIP** | 4ppm, PCL-5 | 869 |
| **4L** | NEW! | 669 |
| **4ML** | | 999 |
| **4** | 8ppm, 600dpi, PCL-5 | 1349 |
| **4M** | 6ppm PostScript MAC/IBM | 1899 |
| **4Si** | 17ppm, auto interface switch | 2995 |

**Toner Cartridges**
HP II/III
$39*
PXA201 *remanufactured

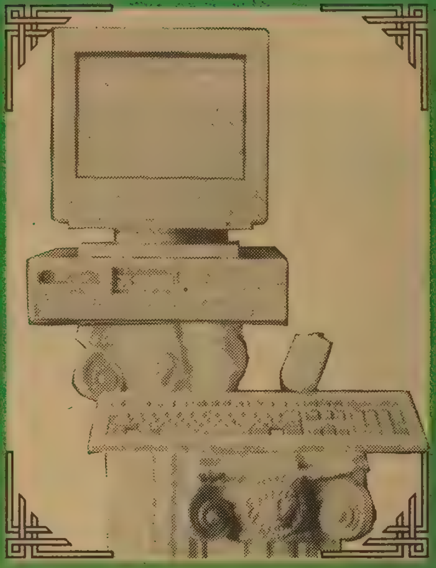
### COLOR PRINTERS

| | | |
|---|---|---|
| **DeskJet 500C** | | 398 |
| **DeskJet 550C** | | 588 |
| **DeskJet 1200C** | Color 6ppm 2MB RAM | 1399 |

### SCANNERS

| | | |
|---|---|---|
| **ScanJet IIP** | with interface | 749 |
| **ScanJet IIC Color** | with Interface | 1295 |

# WIT... THE LAST WORD IN HIGH PERFORMANCE!



## IBM TECHNOLOGY + AFFORDABILITY MAKES YOUR LIFE EASY!

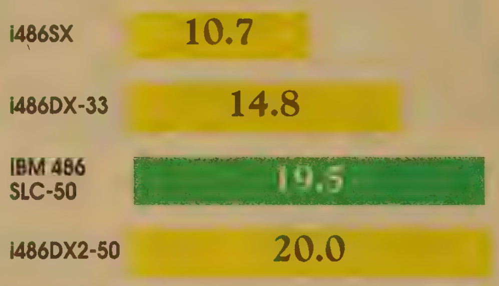
**IBM 486-SLC2-50 ISA....$1100**
(Manufactured By IBM)

**IBM 486-SLC2-50 VLB.....$900**
(WIT Perfect Combinations)

**IBM 486-SLC2-66 VLB......$960**
(WIT Perfect Combinations)

**Systems Include:**
•4 MB RAM •120 MB HDD •1.44 MB FDD •IDE & I/O Card
•SVGA .28 Monitor •SVGA Card w/1 MB •101 Keyboard
•Case w/Power Supply • One Year Warranty

**# OF MIPS**
**Comparison IBM/Intel**



## WIT HIGH PERFORMANCE SYSTEMS

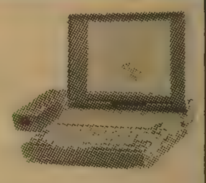
| | |
|---|---|
| WIT VESA 486DX2-66/DX-40 w/256K Cache | $1430/$1240 |
| WIT VESA 486DX-50/DX-33 w/256K Cache | $1380/$1230 |
| WIT ISA 486DX2-66/DX-40 w/256K Cache | $1360/$1180 |
| WIT ISA 486DX-50/DX-33 w/256K Cache | $1240/$1170 |
| WIT ISA 486SX-33/SX-25 w/256K Cache | $1050/$960 |
| WIT 386DX-40 w/128K Cache | $930 |
| WIT 386SX-33 | $870 |

**The Perfect Combination...Cutting Edge Technology and Affordability!**
**These Great Systems Include:**

✤ 4 MB RAM
✤ 1.2MB & 1.44 MB Floppy Drives
✤ 120 MB Hard Drive
✤ IDE FDD/HDD Controller
✤ 2 Serial/1 Parallel/1 Game Port
✤ Mini-Tower Case w/230W Power Supply
✤ 101-K Keyboard
✤ Windows Accelerator SVGA w/1 MB
✤ 14" SVGA .28 dp Monitor
✤ 72 Hour Burn-In & Fully Tested
(Note VESA Local Bus Comes With 32-Bit VLB & 32-Bit VLB SVGA)

## WIT HIGH PERFORMANCE NOTEBOOKS

| | |
|---|---|
| 486-SLC33 VGA COLOR w/120 MB | $1790 |
| 486-SLC33 VGA MONO w/120 MB | $1320 |
| 486-SLC25 VGA COLOR w/80 MB | $1650 |
| 386-SL25 VGA COLOR w/80 MB | $1450 |
| 386SL25 VGA MONO w/80 MB | $875 |



NEW NOTEBOOKS w/PCMCIA Slots & Center Trackball
**CALL FOR PRICE**

**Systems Include:**

✤ 2 MB RAM
✤ 1.44MB 3.5" FDD
✤ Color VGA LCD 640 x 480 Res, 9" diagonal
✤ Paper White VGA 10" LCD 640 x 480, 64 Gray Scale
✤ Ext VGA Port
✤ Connector for Docking Station
✤ 1 Par/1 Ser
✤ Dual Ni-CAD Batteries and Adapter
✤ 8.5"x11"x1.73" Only 5.7 Lbs
✤ Carrying Case
✤ Built-In 2-Button Trackball

**NOTEBOOK UPGRADES:**

| | |
|---|---|
| 120 MB Hard Drive | Add $85 |
| FAX Modem | Add $110 |
| Memory Per MB | Add $55 |

## MULTIMEDIA PRODUCTS

| | |
|---|---|
| Sound Blaster Pro Deluxe | $115 |
| Sound Blaster Pro ASP | 195 |
| Speaker 25 Watt Pair | 20 |
| CD-ROM Upgrade Kit | 375 |
| Mitsumi CD Rom | 175 |
| Sony 31A CD-ROM | 175 |

## DRIVES

| | |
|---|---|
| 120 MB/130 MB IDE HDD | $160/170 |
| 170 MB/210 MB IDE HDD | 190/205 |
| 250 MB/340 MB IDE HDD | 220/280 |
| 420 MB/540 MB IDE HDD | 400/540 |
| Teac 1.2/Epson 1.2 FDD | 50 |
| Teac 1.44/Epson 1.44 FDD | 45 |
| Colorado 120 MB Tape Back-Up | 145 |
| Colorado 250 MB Tape Back-Up | 170 |
| Conner 250 MB Tape Back-Up | 155 |
| Tape Cartridges | 23 |

## CONTROLLERS

| | |
|---|---|
| ISA IDE 2FD/2HD w/2S/1P/1G | $15 |
| VESA IDE 2FD/2HD w/2S/1P/1G | 35 |
| Vitex AT I/O (2S/1P/1G) | 12 |
| Promise ISA IDE Cache Controller | 100 |
| Promise VESA IDE Cache Controller | 150 |
| Adaptec 1542C SCSI Controller | 190 |
| Adaptec 1542CK SCSI II Controller | 235 |
| Adaptec 2842VLK VESA SCSI Controller | 285 |
| Adaptec 2742TK EISA SCSI Controller | 380 |
| BusLogic 545S ISA SCSI Controller | 215 |
| BusLogic 445S VLB SCSI Controller | 245 |
| BusLogic 742A EISA SCSI Controller | 275 |

## MODEM & FAXES

| | |
|---|---|
| On-Line 2400 Modem w/9600 Send Fax | $30 |
| On-Line Fax Modem 9600 Fax/2400 Modem | 45 |
| On-Line Fax Modem 14400 Fax/14400 Modem | 130 |
| On-Line Pocket Fax Modem 14400 Fax/14400 Modem | 185 |

## MONITORS

| | |
|---|---|
| Eye-Q 14" Amber | $85 |
| Eye-Q 14" VGA Mono | 105 |
| 14" SVGA 1024x768 .39 | 190 |
| 14" SVGA 1024x768 .28 | 230 |
| 14" SVGA 1024x768 .28 NI | 250 |
| 15" SVGA 1280x1024 .28 NI | 340 |
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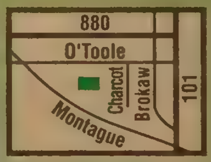

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# Affordable High-Speed Modems

## *With Inexpensive 14,400 Fax Modems The Long-Awaited Explosion In Telecommunications Has Arrived*

**BY JOHN COWAN**

### RESOURCES:

**Sportster 14,400/PC FAX Modem, (Internal: $259, External: $299)**
US Robotics, Inc.
8100 North
McCormick Blvd.
Skokie, IL 60076-2999
1-800-342-5877

**WinFax PRO (Version 3.0: $129, $49 upgrade from WinFax LITE DosFax PRO, Version 2.0: $79, $49 upgrade from DosFax LITE)**
Delrina Technology, Inc.
6830 Via Del Oro,
Ste. 240
San Jose, CA 95119-1353
1-800-268-6082

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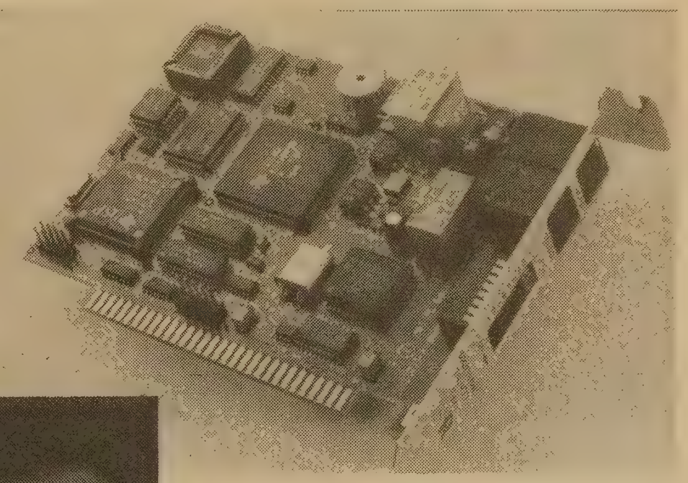
You enjoy logging onto the Internet or a local Bulletin Board System, but hate how slowly your 2400 baud modem displays text on the screen. Or perhaps you are not yet online, because the task of learning to deal with a modem keeps you from making the move. Take heart. Increased modem capability, falling prices, evolving data transmission standards, the proliferation of fax modem capabilities, and a burgeoning cohort of online computer users have combined to make personal telecommunications a much more attractive proposition.

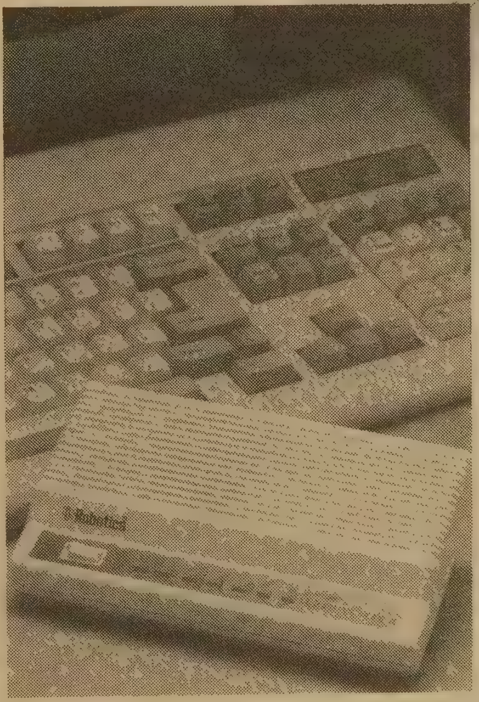
As usual, advancing technology leads the parade, this time in the form of inexpensive 14,400 baud fax modems. Like most modem hackers, I have been eyeing the 14.4, or "fourteen-fours," for some time. At more than $350, however, they were too expensive. I resolved to have a look when street prices dropped below $200. Tracking the possibilities at a local computer supermarket, I spotted a US Robotics Sportster 14,400 baud fax modem. Its specs were impressive, the price was right, and it came in a handsome box. The Sportster proved to be an appropriate choice, since US Robotics is the well-established firm which kicked off a major expansion in the market for high-speed modems by dropping its prices dramatically last spring. Competitors followed suit, resulting in across the board price reductions of one third to one half.

## REVOLUTIONARY TELECOMMUNICATIONS

The increased capability of the fourteen-fours over the previous generation's standard at 2400 baud can appropriately be called revolutionary. A look at the capabilities of the new package shows why.

Suppose you are reading text while online to your local BBS. At 2400 baud, it takes about six seconds to write a 25 x 80 screen. At 14,400 baud, the write takes less than a second. For me, waiting six seconds while the screen fills results in irritating fatigue after a very short stint at the console. At 14,400 baud, the wait is barely noticeable. I am now able to read netmail from old friends, participate in public computer forums, peruse an online encyclopedia, or converse in real-time text, all with the speed and comfort I associate with word processing on my own computer.





Now, suppose you are downloading graphical image format (GIF) display images from the Internet. At 2400 baud, using the Zmodem protocol, approximately 260 bytes are transmitted per second, fewer than 15K bytes per minute. At this rate it takes about ten minutes to transfer a 150K file, a typical size for a GIF image. At 14,400 baud, the same picture can be downloaded in a minute and forty seconds. The additional speed saves money, especially if you are paying message units to connect.

Until the recent price break, there was some question whether modem purchasers should choose a 14,400 baud unit or settle for 9600 baud. That question has been resolved in favor of the fourteen-fours. Because the price difference between the two models has rapidly disappeared, 9600 baud modems have practically been driven from the market. Sysops are skipping 9600 baud and buying fourteen-fours for their BBSes. CompuServe still utilizes 9600 baud modems, but plans to move up to 14,400 baud soon. In any case, the fourteen-fours adjust seamlessly to the lower speed, as they do to all standard lower baud rates. If you choose a 9600 baud unit now, you will only limit your speed in the future.

## THE SPORTSTER CAN ALSO FAX

The Sportster's fax handling capabilities were truly a revelation to me. The unit

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| 2400 Baud Int/Ext Modem Hayes | 42 |

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comes with a package called WinFax LITE, by Delrina Technology. You can install WinFax as a Microsoft Windows printer driver. Then, when you print from your Windows word processor, WinFax prompts for a phone number, dials, and transmits the document as a fax. WinFax receives faxes, either upon command or in background mode, and allows you to view, modify, and annotate them, as well. It also allows reception of faxes when running standalone DOS applications.

A companion program, DosFax, provides many of WinFax's capabilities, but runs under DOS rather than Windows. WinFax and DosFax can both be configured to operate with most fax modems. Both programs require a fast processor, many megabytes of disk space, and a VGA video system. I am running WinFax on a 486 and find it fast enough; a 386 system might be adequate, and a 286 too slow.

> *The increased capability of the fourteen-fours over the previous generation's standard at 2400 baud can appropriately be called revolutionary.*

Be aware that stored faxes are disk hogs. A page of text which would occupy 3.5K bytes as ASCII characters, requires 45K to store as a fax image. Not to worry. For $50 you can upgrade to WinFax PRO, which offers an optical character recognition (OCR) capability that translates fax text images to ASCII, or to a chosen word processor format. Better still, if you have access to a fax machine or scanner, the Sportster/WinFax combo becomes a poor man's OCR system. I faxed a laser printed document, in a ten point Times Roman font, from work to home. The OCR program successfully converted all but twenty of its three thousand characters. The paperless office may never be achieved, but with such capabilities, we are certainly a big step closer.

Utilization of fax has proliferated, in part because fax provides universal standards which allow nearly hands-off operation. The spread of PC data communications, however, has been hampered by the lack of a single standard. This situation is improving somewhat, although we still have a way to go. The CCITT V.32 bis and V.42 bis standards (the buzzwords to remember) specify the physical transmission of data at 14,400 baud, with error control, and increased throughput speed achieved by data compression. In conjunction with the Zmodem data transmission standard, they are as transparent as fax. To download a file from the Internet, I simply type sz filename<ENTER>. Procomm, my communications software, is smart enough to detect the incoming transmission, begin reception, and monitor the transfer to completion, all without operator intervention. Zmodem, which is gaining widespread acceptance because of its convenience, is, however, only one of many "standards," including Kermit, Xmodem, Ymodem, ASCII, etc., each with its own requirements and idiosyncrasies.

## SPORTSTER'S PERFORMANCE

The Sportster performed well. It seems resistant to the typical noise of a local telephone circuit. I tried the unit with several bulletin boards, as well as my Internet service, and had few problems reading and writing text. Downloading large files from the Internet has proven reliable, but uploading seems prone to communication errors, which Zmodem corrects by retransmission. I also tried the Sportster on our PBX telephone system at work. A friend with a Macintosh PowerBook running Smartcom II and a Supra modem called Procomm on my PC via the Sportster. Procomm responded and we were able to transmit text to each other's screens at 14,400 baud once we realized that the Mac and PC require different line terminators.

You will need to configure the Sportster (or any modem, for that matter) to your communication software and your computer, by setting switches and choosing initialization sequences. This task has become more complicated as modems have become

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| | 6FS | $515 |
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| | 5E | $375 |
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| | 4E | $285 |
| Addonics | C143 NI .28dp | $298 |
| | C142 I .28dp | $255 |
| Merit Scan: | | |
| | 14" 1024x768 .39dp | $208 |
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| | 14" 1024x768 .28 N-I | $265 |
| | 15" 1280x1024 0.28dp | $388 |

## HARD DISK

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| SCSI | 676MB Maxtor | $849 |
| | 345MB Maxtor | $325 |

## FLOPPY DRIVE

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| Toshiba 2.88MB | $58 |
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| Mounting Kit | $4 |

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| Keyboard w/Trackball | $65 |
| Focus 9000/8000 | $79/42 |
| Omni Ultra | $95 |
| Omni 101 /102 | $65 |
| Fujitsu 4700/4850 | $45/32 |
| Keytronics 101 | $35 |
| Maxi 101 | $33 |
| Click 101 | $26 |
| BTC 5339SX 101 | $21 |
| BTC 5100 Small Size | $34 |

## VIDEO CARD

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| VESA Local Bus : | |
| Diamond Speed Star VLB w/ 1MB | $114 |
| Spider VLB 1MB | $99 |
| Orchid P 9000 VLB | $349 |
| Orchid Celsius VLB | $209 |
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| * IDE 4A-2.88<br>2HD/4FD Supt. 2.88 | $45 |
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- * CPU Cooling Fan
- * Mid Tower Case /230W P.S
- * 101 Keyboard
- * 15" Multi Scan Monitor

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| 486DX-50 | $1535 |
| 486DX-33 | $1375 |

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- * Genoa VLB SVGA Card
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- * Teac 1.2 & 1.44MB FDD
- * Maxtor 245MB HDD
- * Mid Tower Case w/230W P.S
- * 101 Keyboard
- * 14" Multi Scan Monitor

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| 486DX-50 | $2048 |
| 486DX-33 | $1898 |

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| ISA: | 486DX-33 | $595 |
| | 486DX2-66 | $795 |

| | |
|---|---|
| **Orchid** no CPU w/256K 486DX-33/66 | $175 |
| 486DX-50 | $182 |
| IBM 486SLC2-50 w/CPU & 64K Cache | $285 |
| FREE (OEM for Genoa) /256K 486 Board no CPU | $145 |
| w/ ZIFF Sccket | $155 |

### TSL EISA VESA BOARD

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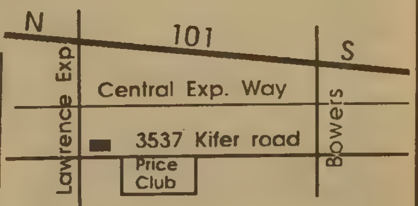
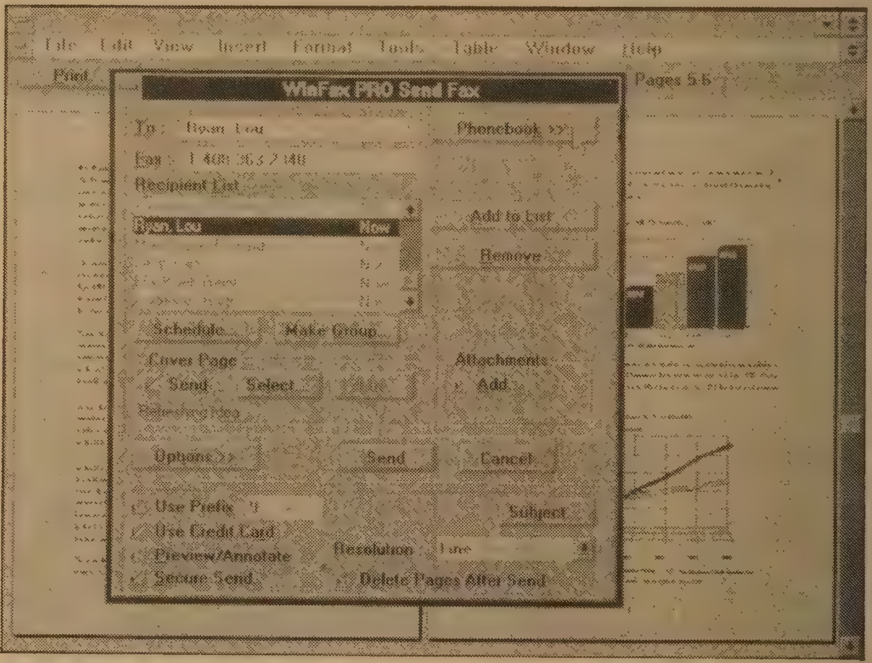
486DX/DX2 Main Board w/256K Cache no CPU (Opti) Chipset......$125
3486 Board w/256k Cache w/ 386dx-40 CPU Upgradable to 486 ....................$165



## CD-ROM DRIVE

| | |
|---|---|
| Panasonic 522 | $215 |
| 562 | $255 |

more capable. US Robotics, however, provides a helpful booklet which gives specific directions for connecting the Sportster to more than a dozen communication software packages. Installation took me about a half hour. Configuring the external version was straightforward since I had a spare RS-232 port available. Installing the internal modem, however, was complicated by a need to select appropriate PC interrupt vectors and set jumpers accordingly on the modem board. If you don't feel like dealing with such problems, buy the modem and the communications software from a vendor who is willing to handle installation. When buying a new computer, do not fail to include a modem. (If cost is a problem, 2400 baud units with send fax capability are available for as little as fifty dollars.)



*WinFax, included with the Sportster Fax/Modem, prompts you for a phone number, dials, and smoothly transmits your documents as a fax.*

When purchasing a fast modem, it is important to choose a manufacturer, like US Robotics, with lots of experience. High-speed data transmission over voice grade telephone lines is a smoke and mirrors business. While most manufacturers of 14,400 baud modems meet the requirements of V.32 bis and V.42 bis, they each do it in a slightly different fashion, especially regarding line noise handling. This can make it difficult for modems from different manufacturers to communicate with each other on noisy lines. In this game, experience yields reliability—a word to the wise.

## THE FUTURE IS HERE

For many years, the so-called telecommunications revolution has been just around the corner, but it never seemed to arrive. Now, with the advent of inexpensive 14,400 FAX modems, the long-awaited explosion in personal computer telecommunications may at last be about to detonate. ■

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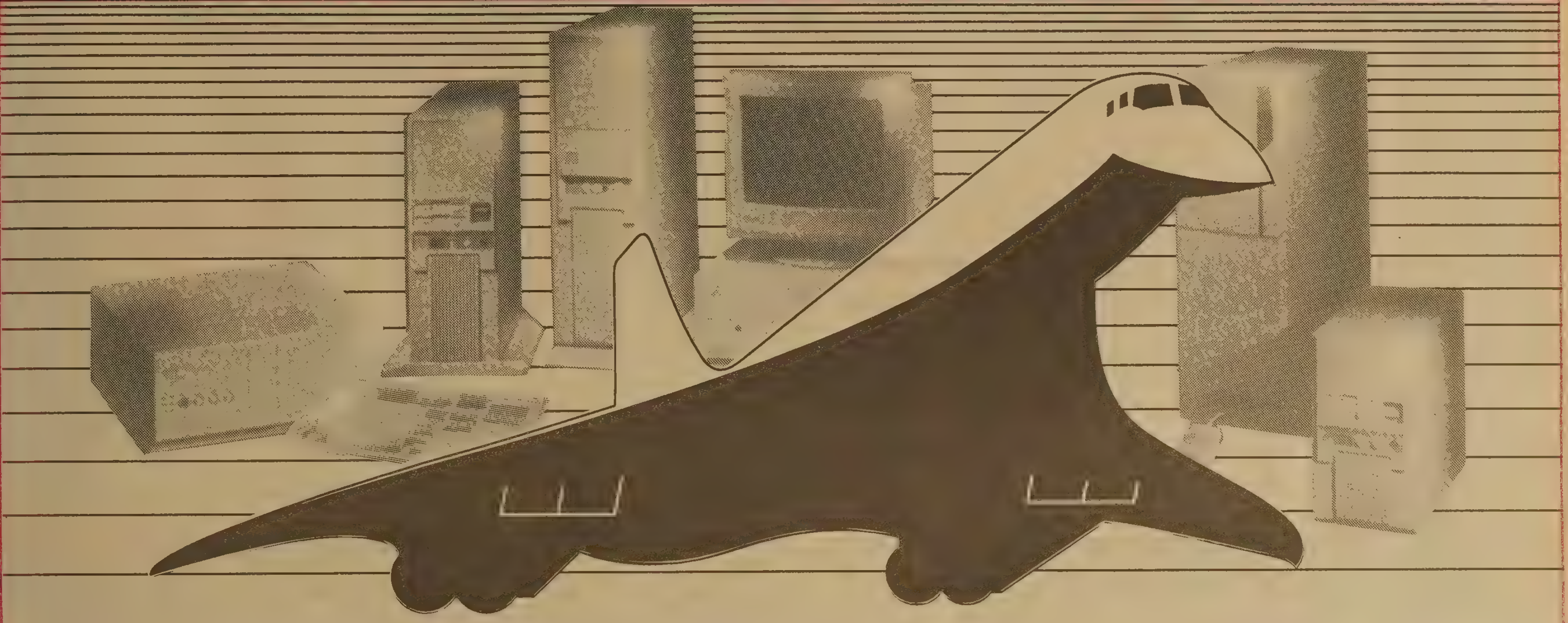

### 486DLC-33 ISA System

- Cyrix 486DLC-33 processor
- Cyrix 387DLC-33 Math Co-processor
- AMI Bios
- 64K High-Speed Cache SRAM
- 4MB Fast-Page Mode 70ns SIMM Ram
- Teac 1.2 and 1.44 Floppy Drives
- Maxtor 131 MB Hard Disk 15ms
- Trident 1MB SVGA Video Card
- 14" .28 SVGA Monitor (1024x768)
- IDE Interface with 2HD/2FD
- 2Serial, 1Parallel, 1Game Ports
- 230Watt Power Supply
- Mini Tower Case
- 101 Enhanced Keyboard

**$959**

### 486DLC-40 VLB System

- TI 80486DLC-40 Processor
- 387DLC-40 Math Co-processor
- AMI BIOS
- 2 VESA Local Bus Slots
- 128K High-Speed Cache SRAM
- 4MB Fast-Page Mode 70ns SIMM Ram
- Teac 1.2 and 1.44 Floppy Drives
- Quantum 170 MB Hard Disk 15ms
- VLB Cirrus Logic 1MB SVGA Video Card
- 14" .28 SVGA Monitor (1024x768)
- IDE Interface with 2HD/2FD
- 2Serial, 1Parallel, 1Game Ports
- 230 Watt Power Supply
- Mini Tower Case
- 101 Enhanced Keyboard

**$999**

### 486SLC2-66 ISA System

- IBM 486SLC2-66 Processor
- Cyrix 387SLC-33 Math Co-processor
- 16K Internal Cache
- AMI BIOS
- 4MB Fast-Page Mode 70ns SIMM Ram
- Teac 1.2 and 1.44 Floppy Drives
- Quantum 170 MB Hard Disk 15ms
- Trident 1MB SVGA Video Card
- 14" .28 SVGA Monitor (1024x768)
- IDE Interface with 2HD/2FD
- 2Serial, 1Parallel, 1Game Ports
- 230 Watt Power Supply
- Mini Tower Case
- 101 Enhanced Keyboard

**$1050**

### 486SLC2-66 VLB System

- IBM 486SLC2-66 Processor
- 387SLC-33 Math Co-processor
- 16K Internal Cache
- 128K High-Speed Cache RAM
- AMI BIOS
- 2 VESA Local Bus Slots
- Heat Sink For CPU
- 4MB Fast-Page Mode 70ns SIMM Ram
- Teac 1.2 and 1.44 Floppy Drives
- Conner 250 MB Hard Disk 15ms
- VLB Cirrus Logic 1MB SVGA Video Card
- 14" .28 SVGA Monitor (1024x768)
- VLB IDE Interface with 2HD/2FD
- 2Serial, 1Parallel, 1Game Ports
- 230 Watt Power Supply
- Mini Tower Case
- Focus 101 Enhanced Keyboard

**$1250**

## *Upgrade Specialist We Will Upgrade Any System*

### *MONITORS*

*SPECIAL $185*
*QTY LIMITED*

| *SVGA 14"* | |
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| **Everview** | |
| 14" SVGA .39 | $195 |
| 14" SVGA .28 | 239 |
| 14" SVGA NI .28 | 269 |
| 14" SVGA NI 1280 | 289 |
| 15" SVGA NI 1280 | 405 |
| **Standard** | |
| 17" VESA NI 1280 | 760 |
| **MAG** | |
| 15" 15F 1280 x .28 | 485 |
| 17" 17F 1280 x .26 | 930 |
| **NANAO** | |
| 17" F550iw 1280 x 1024 | 1050 |
| 17" T560i 1280 x .26 | 1650 |
| **NEC** | |
| 15" 3FGe Flat 1024 | 600 |
| 15" 4FGe Flat 1024 NI | 690 |
| 17" 5FGe 1024 x 768 NI | 1080 |
| 21" 6FGe Flat 1280 .28 | 2395 |
| **SAMPO** | |
| 17" KDM-1766 .31 1280x NI 74Hz | 707 |
| **SONY** | |
| 17" 1730 1024 x768 .28NI | 980 |
| 20" 2038 1280x1024 .30NI | 2295 |
| **VIEWSONIC** | |
| 14" 5E 1280x .28NI | 360 |
| 15" 6E 1024x .28NI | 290 |
| 15" 15 1024x .28NI | 500 |
| 17" 17 1280x .28NI | 1130 |

### *DRIVES*

| | |
|---|---|
| 120MB Conner IDE 16ms | $165 |
| 127MB Quantum IDE 16ms | 180 |
| 131MB Maxtor IDE 15ms | 185 |
| 170MB Conner IDE 15ms | 195 |
| 170MB Quantum IDE 15ms | 200 |
| 245MB Maxtor IDE 15ms | 240 |
| 245MB Maxtor SCSI-2 15ms | 275 |
| 245MB Conner IDE | 255 |
| 340MB W.D. IDE 13ms | 280 |
| 340MB Maxtor SCSI-2 | 375 |
| 520MB Fujitsu SCSI-2 12ms | 675 |
| 520MB Fujitsu IDE 12ms | 675 |
| 525MB Quantum SCSI-2 12ms | 675 |
| 525MB Quantum IDE 12ms | 650 |
| 1.0GB Toshiba SCSI-2 512K | 980 |
| 1.2GB Toshiba SCSI-2 512K | 1030 |
| 2.1GB Fujitsu SCSI-2 5.25" | 1825 |
| 1.08GB Fujitsu SCSI-2 10ms | 1050 |

### *TAPE BACKUPS*

| | |
|---|---|
| Colorado DJ-10 | $145 |
| Colorado DJ-20 | 179 |
| Trakker 120 | 295 |
| Trakker 250 | 350 |

### *MOTHERBOARD W/CPU*

| | |
|---|---|
| 486/66 DX2 128/256K VLB | $578/598 |
| 486/50 DX 128/256K ISA | 478/498 |
| 486/33 DX2 256K VLB | 398 |
| 486/66 DX2 128/256K ISA | 548/568 |
| 486/33 DX 128/256K ISA | 348/368 |
| 486/66 SLC2 | 300 |
| 486/33 DLC 64/256K | 190/220 |
| 386/40 DX 128K Opti | 130 |
| 386/33 SX | 79 |
| 486/66 DX2 256K EISA VESA | 868 |
| 486/33 DX 256K EISA VESA | 668 |

### *ADD-ONS*

| | |
|---|---|
| IDE 2HD/2FDC | $15 |
| IDE W/2S, 1P, 1G | 20 |
| IDE W/4FDC (2.88) | 50 |
| IDE W/IO 32 bit VLB | 36 |
| IDE W/16550 IO | 50 |
| AT/IO 2S, 1P, 1G | 15 |
| MGP | 15 |
| AT/IO W/2 16550 UR | 40 |
| SCSI Always SCSI | 189 |
| Desktop Case w/200W | 70 |
| Mini Tower Case w/230W | 50 |
| Mid Tower Case w/230W | 70 |
| Mid Tower w/2 Fan Classic | 90 |
| Super Full Tower w/250W | 160 |
| 2400Modem (Internal) | 30 |
| 96/96/24 Fax Modem (IN) | 50 |
| 14.4/14.4 Fax Modem (IN) | 145 |
| 9600 External Modem | 100 |
| 14.4/14.4 Fax Modem (EX) | 175 |

### *CD ROM SOUND CARD*

| | |
|---|---|
| Mitsumi 005 | $160 |
| Sony 31A | 160 |
| Panasonic CR562 | 299 |
| Phillips CM205 | 249 |
| Toshiba MK3401B | 439 |
| Texel DM3024 | 369 |
| NEC CDR74 | 575 |
| Sound Galaxy NX Pro 8bit | 120 |
| Sound Blaster Pro 8bit | 125 |
| Sound Blaster Pro 16 ASP | 189 |

### *UPGRADES*

Your 286 to 386/40 128K Cache w/4MB *Only $350*

Your 286 to 486-33 64K Cache w/4MB *Only $500*

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- Every configuration tested by our technical staff for a minimum of three weeks to ensure quality and compatibility
- 1 Year on components purchased without system
- Prices subject to change without notice
- Not responsible for typographical errors

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Wanna bet on the latest VLB technology? Who can guarantee that the system you want can actually be built and work well? At UMiracle we keep searching around and find all the possible solutions for you - Which harddrive will work the best on VLBus? Which video card has the best value on the VL Bus? Which will support 50MHz? What video chipset should you use? Will it be safe to be on 50MHz VLB? What is Bus-Mastering? Do you need that? How about P5 Overdrive upgradeable? At UMiracle, We make them all work and work the best. Come to us, we have done the homework so you don't have to!

## Multimedia CD Titles

| No. | Description | Price | No. | Description | Price | No. | Description | Price |
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| 001 | MS CINEMANIA | $65 | 065 | CROSSWORD CRACKER | $23 | 131 | SHAREWARE GOLD VOL. 2.0 | $43 |
| 002 | WING COMMANDER & ULTIMA VI | $35 | 066 | DESERT STORM | $23 | 132 | SHAREWARE/B | $45 |
| 003 | SO MUCH SHAREWARE II | $26 | 067 | DINOSAUR ADVENTURE | $24 | 133 | SHAREWARE/CMP | $56 |
| 004 | MS BOOKSHELF | $43 | 068 | EDUCATION MASTER | $23 | 134 | SHAREWARE/LT | $89 |
| 005 | SLEEPING BEAUTY | $37 | 069 | ELECTRONIC LIB OF ART VI | $27 | 135 | SHAREWARE/W | $59 |
| 006 | COMPTON'S ENCYCLEPEDIA (MPC) | $49 | 070 | ENCARTA BY MICROSOFT - DISTI | $295 | 136 | SHERLOCK HOLMES VOL. 2.0 | $67 |
| 007 | THE 7TH GUEST - BY VIRGIN | $53 | 072 | EUROPEAN RACER BY REVELL | $55 | 137 | SHERLOCK/CONSULT DET | $21 |
| 008 | DICTIONARY OF LIVING WORLD | $29 | 073 | FAMILY CHOICE | $25 | 138 | SIMTEL MSDOS SHAREWARE | $17 |
| 009 | ARTHUR'S TEACHER TROUBLE | $23 | 074 | FAMILY DOCTOR | $25 | 139 | SO MUCH SCREENWARE | $37 |
| 010 | BARNEY BEAR GOES TO SPACE | $19 | 075 | FAMILY DOCTOR MPC | $27 | 140 | SPACE ADVENTURE | $23 |
| 011 | BEAUTY & BEAST | $18 | 076 | FAMILY EDUCATION COLLECTION | $24 | 141 | SPACE SERIES APOLLO | $35 |
| 012 | MACMILLAN DICTIONARY | $39 | 077 | FONT MASTER I | $19 | 142 | SPEEDWAY | $63 |
| 013 | MIXED UP MOTHER GOOSE | $18 | 078 | FONT MASTER 11 | $23 | 143 | STORYTIME | $23 |
| 014 | CARMEN SAN DIEGO - DELUXE | $21 | 079 | FUTURA GAMES | $18 | 144 | STW GROLIER'S ENCY MPC | $45 |
| 015 | JONE IN THE LANE | $18 | 080 | GAME MASTER | $19 | 145 | SWIMWEAR 1993 | $29 |
| 016 | PLAYING W/LANGUAGES - ENGLISH | $27 | 081 | GAME PAK I | $23 | 146 | TEMPRA KODAK ACCESS S/W | $18 |
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| 023 | KINGS QUEST V | $14 | 088 | INDIANA JONES FATE ATLANTIS | $53 | 153 | U.S. ATLAS W/AUTOMAP | $22 |
| 024 | SPACE QUEST IV | $22 | 089 | KGB WORLD FACT BOOK | $33 | 154 | U.S. HISTORY | $18 |
| 025 | STELLAR SEVEN | $19 | 090 | KILLER TRACK CD-MUSIC LIB | $17 | 155 | U.S./WORD ATLAS PACK | $20 |
| 026 | ALL BEAUTIES | $28 | 091 | KODAK PHOTO ACCESS | $23 | 156 | U.S.A. STATE FACT BOOK | $33 |
| 027 | ADULT REFERENCE LIBRARY | $28 | 092 | LET'S PLAY | $18 | 157 | VARIETY STORE | $18 |
| 028 | GIRLS OF VIVID VOL. 1.0 | $48 | 093 | LIBRARY OF THE FUTURE 1ST | $43 | 158 | VGA SPECTRUM SOUND LIBRARY | $16 |
| 029 | GIRLS OF VIVID VOL. 2.0 | $48 | 094 | LOOM | $19 | 159 | WIZ-PAK SHAREWARE | $15 |
| 030 | ASIAN LADIES | $46 | 095 | LOVELY LADIES | $33 | 160 | WOMAN IN MONITOR | $57 |
| 031 | ABOUT COWS | $29 | 096 | MAGAZINE RACK | $29 | 161 | WORLD ATLAS MPC | $16 |
| 032 | ADVENTURE OF WILLY BEAMISH | $19 | 097 | MANHOLE | $34 | 162 | WORLD OF FLIGHT | $29 |
| 033 | AIRCRAFT ENCYCLEPEDIA | $33 | 098 | MANTIS EXPERIMENTAL FIGHTER | $22 | 163 | WORLD OF TRAINS | $29 |
| 034 | AMER BUSINESS PHONEBOOK 1992 | $21 | 099 | MAVIS BEACON TYPING 2.0 MPC | $21 | 164 | WORLD VISTA | $29 |
| 035 | AMERICAN VISTA | $31 | 100 | MEDIA CLIPS-4 PAK | $39 | 165 | ANIMATED FANTASIES VOL. 1.0 | $37 |
| 036 | ANIMALS ENCYCLEPEDIA MPC | $33 | 101 | MIRROR MIRROR | $19 | 166 | ANIMATED FANTASIES VOL. 2.0 | $37 |
| 037 | ARCADE BATTLES | $21 | 102 | MONKEY ISLAND - ENGLISH | $19 | 167 | GIRLS OF VIVID BEST | $48 |
| 038 | ARIS JETS & PROPS 2 DISKS | $25 | 103 | MUSICAL INSTRUMENTS | $64 | 168 | HOT PIX ECSTASY | $37 |
| 039 | ARIS WILD PLACES | $21 | 104 | NATIONAL PARKS | $27 | 169 | HOT PIX VOL. 2.0 | $37 |
| 040 | ARIS WIZARD TEST AND TUNE UP | $21 | 105 | NITEOWL 9 SHAREWARE | $33 | 170 | HOT PIX VOL. 3.0 | $37 |
| 041 | ARIS WORLD VIEW | $21 | 106 | NORTH AMERICAN FAX BOOK | $34 | 171 | HOT PIX VOL. 5.0 | $37 |
| 042 | AUDUBON BIRDS | $23 | 107 | OCEAN DIGITAL IMAGERY VOL. 1.0 | $29 | 172 | HOUSE OF SLEEPING BEAUTY | $49 |
| 043 | AUDUBON MAMMALS | $23 | 108 | OLDIES BUT GOODIES | $18 | 173 | PHYXICAL THERAPY | $35 |
| 044 | BARNEY BEAR GOES TO SCHOOL | $21 | 109 | OS/2 ARCHIVES | $19 | 174 | PORKWARE VOL. 2.0 | $39 |
| 045 | BARRON'S COLLEGE GUIDE | $25 | 110 | OUR SOLAR SYSTEM | $17 | 175 | STORM VOL. 1.0 | $36 |
| 046 | BATTLE CHESS | $21 | 111 | PACIFIC ISLAND | $39 | 176 | STORM VOL. 2.0 | $35 |
| 047 | BEETHOVEN BY MICROSOFT - DISTI | $69 | 112 | PC MEDIC | $29 | 177 | STORM VOL. 3.0 | $35 |
| 048 | BRAIN DRAIN | $21 | 113 | PC SIG 11 SHAREWARE | $18 | 178 | SOUTHERN BEAUTIES | $48 |
| 049 | BUS. & ECON. WORLD ATLAS | $26 | 114 | PC SIG 12 SHAREWARE | $23 | 179 | WOMEN OF VENUS | $30 |
| 050 | BUSINESS BACKGROUND | $44 | 115 | PETER AND THE WOLF | $19 | 180 | 101 SEX POSITION VOL. 1 | $49 |
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| 056 | CINEMANIA BY MICROSOFT - DISTI | $69 | 121 | PRO PHONE 1993 | $129 | 186 | HOT PIX VOL. 4 | $37 |
| 057 | CLIP ART HEAVEN | $25 | 122 | PROGRAMMER'S ROM | $33 | 187 | PACIFIC RIM VID | $54 |
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| 060 | COMPLETE BOOKSHOP | $18 | 125 | SAN DIEGO ZOO/ANIMALS | $22 | 190 | WICKED WINDOWS | $65 |
| 061 | COMPOSER QUEST | $33 | 126 | SECRET WEAPON OF LUFTWAFFE | $22 | 191 | DIGITAL DREAMS | $44 |
| 062 | CONSUMER INFORMATION | $33 | 128 | SFX-300 SOUND EFFECTS | $15 | 192 | BUSTING OUT BY VIVID | $54 |
| 063 | COREL ARTSHOW 3 | $63 | 129 | SHAKESPEARE | $22 | | | |
| 064 | CREATIVE/PROSONUS SOUND | $23 | 130 | SHAREWARE BONAZA | $43 | | | |

## ISA VESA Local Power Station

- ○486 ISA VESA LocalBus 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1M-70ns SIMMx4)
- ○1.2M & 1.44M TEAC Floppy Drives
- ○213MB Western Digital Harddisk 64K Cache
- ○Promise DC2000 VLB 32Bit IDE Controller with I/O
- ○SPiDER VLB 1MB Windows Accelerator
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 Enhanced Keyboard

| | |
|---|---|
| 486-33SX | $1192 |
| 486-33DX | $1314 |
| 486-40DXAMD | $1334 |
| 486-50DX/2 | $1367 |
| 486-66DX/2 | $1502 |

Don't just blindly look for the lowest prices! Regular ISA system is bottle-necking with its 8MHz AT bus. Even with a fast CPU, it's like a three hundred horse-powered YUGO, harddisk and video performances are limiting the overall performance. Think smart and get a well-balanced VESA LocalBus system for now, and for your future. Spend a little bit more, break the 8MHz AT Bus bottleneck and run the video and harddisk at the same speed that CPU is running! With this fully-tested VLB motherboard, we can guarantee that you won't run into any incompatibility problem! And with our Promise 32Bit VLB IDE controller and 32Bit VLB video accelerator, harddisk transfer performance TRIPLES! Video runs at least (not Up to!!) TEN TIMES faster in both DOS and Windows than Regular ISA computer. Come on in and get a test-drive on this amazing machine! You have to see it to believe it!

Recommended Upgrades:

| | |
|---|---|
| Orchid Fahrenheit VLB STD/VA/Celsius | add$40/100/120 |
| Diamond SpeedstarPro/Stealth 24/Pro/Viper | add$15/60/170/270 |
| Promise 1/4/16MB Cache VLB 4030VL | add$160/284/752 |
| Western Digital HD 250/340/420MB | add$25/85/205 |
| Ultrastor 34F/BusLogics BT445S/AIR + SCSI HD | add$Call |
| Premium DeskTop/Med/Full Tower | add$5/25/45 |
| KFC 14"/15"/17" Multisync Monitor | add$105/195/530 |
| Sony/NEC/Viewsonic/Nanao/Mag | add$Call |
| Mouse/DOS V6.0/Windows V3.1 | add$Call/49/59 |

You can expect to come by and pick one up! We have them pre-built!

## AIR ISA VESA Local Power Station

- ○486 AIR ISA 3 Slot VESA LocalBus 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1M-70ns SIMMx4)
- ○1.2M TEAC & 2.88M TOSHIBA Floppy Drives
- ○250MB IDE Western Digital 64K Cache Harddisk
- ○VLB 32Bit IDE Controller with 2 Hi-Speed I/O and 2.88MB Support
- ○SPiDER VLB 1MB Windows Accelerator
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 KeyTronic Keyboard

| | |
|---|---|
| 486-33SX | $1353 |
| 486-33DX | $1475 |
| 486-40DXAMD | $1495 |
| 486-50DX/2 | $1528 |
| 486-50DX | $1607 |
| 486-66DX/2 | $1663 |

We just keep improving! 2.88MB floppy drive used to be highly-priced and floppy controller chipset for 2.88MB was expensive! Not untill now! For only 10 bucks more and you can get ready for the future! And remember, 2.88MB is downward compatible with 1.44M and 720K, so you will have no problem reading or writing. Plus our high-speed UART 16550 buffer chips for COM1 and COM2 - a must for true Windows Multi-tasking, background serial port/modem smooth data transmission, you just won't lose buying from us. And with our name brand AIR motherboard, you get 3 VLB slots, all with Bus mastering capability, 50MHz VLB compatiblity, Intel P5 Overdrive support and GUARRANTEED future compatiblity, you are definitely buying into future with this motherboard! No one can offer you this perfect machine at this perfect price, we guarrantee it!

Recommended Upgrades:

| | |
|---|---|
| Orchid Fahrenheit VLB STD/VA/Celsius | add$40/100/120 |
| Diamond SpeedStarPro/Stealth 24/Pro/Viper | add$15/60/170/270 |
| Promise 1/4/16MB Cache VLB 4030VL | add$148/272/740 |
| Western Digital HD 213/340/420MB | add$-25/60/120 |
| UltraStor 34F/BusLogic BT445S/AIR + SCSI HD | add$Call |
| Premium DeskTop/Med/Full Tower | add$5/25/45 |
| KFC 14/15/17" Multisync Digital Monitor | add$105/195/530 |
| Sony/NEC/Viewsonic/Nanao/Mag | add$Call |
| Mouse/DOS V6.0/Windows V3.1 | add$Call/49/59 |

Guarantee the feature-richest you can find anywhere on the market!

## AIR EISA VESA Local Power Station

- ○486 AIR EISA 3 Slot VESA LocalBus 256K Cache Motherboard
- ○16MB 70ns RAM 72 Pin SIMM
- ○1.2M & 1.44M TEAC Floppy Drives
- ○345MB Maxtor SCSI 14MS Harddisk 64K Cache
- ○BusLogic BT445S VLB SCSI-2 Bus-Mastering Controller
- ○Diamond Viper VLB 2MB VRAM Windows Accelerator
- ○Impression 17" 1280X1024NI - Exactly MAG 17F like!
- ○AT I/O 2S/1P/1G
- ○Premium Full Tower 250W PS
- ○101 KeyTronic Keyboard

| | |
|---|---|
| 486-33SX | $3273 |
| 486-33DX | $3395 |
| 486-40DXAMD | $3415 |
| 486-50DX/2 | $3448 |
| 486-66DX/2 | $3583 |

The highest-end you can find! AIR EISA VESA LocalBus Motherboard supports P5 Overdrive, ZIF Socket for easy upgrade & 256MB Memory on board. Yes! 256MB using 72Pin 64MB SIMM! (Soon to be released) Great news for Imaging and Photographic software users! And with full 8 EISA slots and 3 VESA LocalBus extensions, you can plug in any different bus cards you want! We bundle this machine with a Bus-Mastering SCSI-2 VLB Controller and rockets the Data Transfer Rate to close to 10MB/Sec! This amazing controller supports 7 hard drives and transfers up to 66MB/Sec. Besides we add the ultimate Windows Accelerator Diamond Viper and make the Windows fly at the highest possible WinMarks. Believe it, you won't find a machine performs closer to this at any price!

Recommended Upgrades:

| | |
|---|---|
| Promise Cache VLB 4030VL+IDE HardDisk | add$Call |
| SCSI-2 HardDisk | add$Call |
| Sony/NEC/Viewsonic/Nanao/Mag | add$Call |
| Mouse/DOS V6.0/Windows V3.1 | add$Call/49/59 |

See this machine with Windows NT 3.1 running in our showroom!

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- ☑ 1 Year Parts and Life Time Labor Warranty
- ☑ Expertise LifeTime Technical Support
- ☑ 30 Day Money Back Compatiblity Guarantee

**Phone: 510-226-6746**
**Fax: 510-226-6758**
**Mon to Sat 9:00AM-6:00PM PST**

VISA
ATM COD

Reminder: It makes no sense to buy an VLB system without Harddisk Controller and Video card on VLB. You aren't taking the advantage of the VLB! Be careful!

# hnology. VESA Local Bus, You Can Count On Us!

cle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle UMiracle

## Orchid Super VESA LocalBus Station

- ○Orchid SuperBoard 486 VLB 2 Slot 256K Cache Motherboard
- ○4MB 70ns SIMM RAM (1M-70ns SIMMx4)
- ○1.2M & 1.44M TEAC Floppy Drives
- ○213MB Western Digital Harddisk 64K Cache
- ○Orchid VESA LocalBus 32Bit IDE Controller with 2S/1P/1G
- ○Orchid Fahrenheit VLB 1MB w/ S3-805 Chipset 24M Winmarks
- ○14" 1024X768 0.28DP Impression Monitor
- ○Premium Mini Tower 230W PS
- ○101 Enhanced Keyboard

| | |
|---|---|
| 486-33SX | $1297 |
| 486-33DX | $1419 |
| 486-40DX AMD | $1439 |
| 486-50DX/2 | $1472 |
| 486-66DX/2 | $1607 |

Orchid's Second Generation Superboard 486 VLB, the minibaby AT-sized motherboard built with an unrivalled feature set. This unique motherboard rounds out Orchid's family of VLB products to provide complete VLB solution. With Orchid's new VLB IDE I/O card and Orchid Fahrenheit VLB, you simply won't find anything that's faster and more reliable. A complete VESA LocalBus solution from Orchid! Fahrenheit VLB VA with Voice Annotation capability lets you speak to your computer rather than type. All new optional upgrade Celsius VLB uses the IIT AGX015 graphics processor and high performance VRAM and cranks out 38.8 Wintach V1.2 overall RPM test, compared to 20.34 on ATI VLB Mach 32. Come by and try the difference!

Recommended Upgrades:

| | |
|---|---|
| Orchid Fahrenheit VLB VA/Celsius 1/2MB | add$60/80/140 |
| Diamond SpeedstarPro/Stealth 24/Pro/Viper | add$-25/20/130/230 |
| Promise 1/4/16MB Cache VLB 4030VL | add$135/259/727 |
| Western Digital HD 250/340/420MB | add$25/85/205 |
| UltraStor 34F/BusLogic BT445S/AIR + SCSI HD | add$Call |
| Premium DeskTop/Med/Full Tower | add$5/25/45 |
| KFC 14"/15"/17" Multisync Monitor | add$105/195/530 |
| Sony/NEC/Viewsonic/Nanao/Mag | add$Call |
| Mouse/DOS V6.0/Windows V3.1 | add$Call/49/59 |

Fastest Video Performance at this price range!

## Micronics VLB Power Station

- ○486 Micronics JX-30 VLB 256K Cache Motherboard w/ IDE I/O
- ○8MB 70ns RAM 72 Pin SIMM
- ○1.2M & 1.44M TEAC Floppy Drives
- ○340MB IDE Western Digital 64K Cache Harddisk
- ○Diamond Stealth 24 VLB 1MB Windows Accelerator
- ○KFC 15" 1280x1024NI Multisync, Digital Controlled, Flat Screer
- ○Premium Medium Tower 230W PS
- ○101 KeyTronic Keyboard

| | |
|---|---|
| 486-33DX | $2101 |
| 486-50DX/2 | $2154 |
| 486-66DX/2 | $2289 |

Accept only the finest! We don't vaguely write down what you will get, we just specifically state here what will be on the system. Unlike buying from our competitors, you know what you will get when you are reading this. No gimmicks, No tricks! Value-added engineering closely couples Micronics ISA VLB motherboard and Stealth 24 accelerator to ensure speed and performance in DOS, Windows and AutoCAD. We combined this machine with 340MB, 8MB RAM, 15" Digital Controlled monitor just to make sure it will roll years down the road!

Recommended Upgrades:

| | |
|---|---|
| Diamond Stealth Pro/Viper | add$110/210 |
| Promise 1/4/16MB Cache VLB 4030VL | add$183/307/7 |
| Western Digital HD 213/250/420MB | add$-85/-60/1 |
| UltraStor 34F/BusLogic BT445S/AIR + SCSI HD | add$Call |
| Premium Full Tower | add$20 |
| KFC 14/17" Multisync Digital Monitor | add$-90/335 |
| Sony/NEC/Viewsonic/Nanao/Mag | add$Call |
| Mouse/DOS V6.0/Windows V3.1 | add$Call/49/5 |

See this machine with OS/2 V2.1 running in our showroom!

## Components/Upgrades

Add and subtract to make your dream machine.

**Motherboard without CPU: (call for CPU Prices)**

| | |
|---|---|
| 386/486 ISA 128K - 386/486 CPU support | $100 |
| 486 ISA VLB 256K - P24T support | $120 |
| 486 AIR ISA VLB 256K - 3 VLB slots, upto 50MHz ZIF, P24T support, bus-master | $185 |
| Memory Expansion Card 32MB for AIR ISA VLB | $95 |
| 486 AIR Full EISA VLB - 3 VLB Slots, upto 50MHz upto 256MB by 72Pin SIMM, ZIF, P24T support 8 EISA slots + 3 VLB (256/512K) | $380/460 |
| 486 Orchid VLB SuperBoard 256K 2 VLB slots, bus-master | $160 |
| 486 Micronics ISA VLB JX-30 256K w/ CPU, VLB IDE, I/O 486-33DX/50DX2/66DX2 | $650/750/875 |
| 486 Micronics EISA VLB 256K w/ CPU - Top of the line! 486-33DX/50DX2/66DX2 | $850/950/1075 |

**CPU & Memory: (Please Call, Subject to Change Daily!)**

| | |
|---|---|
| Pentium P5/P24T Overdrive CPU | $Call |
| Intel 486 25SX/33SX/33DX/50DX2/50DX/66DX2 | $Call |
| AMD 486-40DX (Pin to Pin Compatible with Intel) | $Call |
| 1MB DRAM (44256-70ns DRAMx8) | $40 |
| 1MB VRAM (44256-70ns VRAMx8) | $60 |
| 1MB RAM (256K-70ns SIMMx4) | $Call |
| 4MB RAM (1M-70ns SIMMx4) | $Call |
| 16MB RAM (4M-70ns SIMMx4) | $Call |
| 72Pin 70ns SIMM (4/8/16/32MB) | $190/370/660/1420 |

**I/O Card/Controller Card/Network Card:**

| | |
|---|---|
| Single/Dual Printer Card | $12/18 |
| AT I/O 2S/1P/1G | $12 |
| AT I/O 2S/1P/1G w/ 2 HiSpd UART 16550's | $45 |
| 16Bit IDE 2FD/2HD Controller | $12 |
| 16Bit IDE 2FD/2HD with 2S/1P/1G | $14 |
| 16Bit IDE 4FD/2HD 2.88MB support | $39 |
| 16Bit IDE 4FD/2HD 2S/1P 2.88MB support | $49 |
| IDE Caching Controller Upto 64MB, 2HD/4FD | $105 |
| Promise DC-2000 VLB IDE w/ I/O | $35 |
| VLB IDE 2FD/2HD w/I/O Support 2.88MB, with 2 HiSpd UART 16550's, 1 Parallel | $80 |
| Orchid VLB IDE Controller w/ I/O | $60 |
| Promise DC-4030VL VLB IDE w/ 0MB Cache | $135 |
| UltraStor 34F SCSI-2 VLB Bus-Mastering | $265 |
| UltraStor Software Driver Kit for 34F | $45 |
| BusLogic BT445S VLB SCSI-2, Bus-Mastering w/ Floppy Ctrl & Driver Kit | $265 |
| Adaptec 1522B/1522BK SCSI Controller | $95/140 |
| Adaptec 1542C/1542CK SCSI Controller | $195/225 |
| Adaptec NEW 2742T EISA RISC-based SCSI-2 Controller w/ Dual Channel supporting 14 HDs, 2.88M | $385 |
| Adaptec NEW 2842VL VLB-to-Fast SCSI-2 Controller w/ 2.88MB Support & Driver Kit | $340 |
| AIR NEW QAccess Fast SCSI-2 VLB Controller w/ VLB IDE/FD and 2S/1P/1G | $205 |
| AIR VLB 32Bit Ethernet Adaptor | $250 |
| Ethernet NE2000 16Bit Adaptor Coaxial/10 Base-T | $55 |

**Video Card:**

| | |
|---|---|
| Monochrome Graphic Printer Card | $12 |
| 16Bit 512K/1MB Trident SVGA 1024x768 | $35/50 |
| 16Bit 1MB Tseng-4000 72Hz 32K Color | $75 |
| SPiDER Cirrus Logic VLB 1MB/2MB | $95/135 |
| SPiDER Cirrus Logic VLB Plus 1MB/2MB | $118/158 |
| SPiDER Black Widow VLB 1MB/2MB | $215/275 |
| Orchid Fahrenheit 1280 ISA PLUS 1MB/2MB | $135/175 |
| Orchid Fahrenheit VLB STD(Upto 50MHz) 1/2MB | $135/175 |
| Orchid Fahrenheit VLB VA (Upto 50MHz) 1/2MB | $195/235 |
| Orchid Celsius VLB 1MB/2MB | $215/275 |
| Diamond Speedstar Pro VLB 1MB/2MB | $110/150 |
| Diamond Stealth 24 VLB 1MB DRAM S3-805 | $155 |
| Diamond Stealth Pro VLB 1/2MB VRAM S3-928 | $265/325 |
| Diamond Viper VLB 2MB VRAM 44M Winmarks | $365 |
| Genoa WindowVGA VLB 1MB | $115 |
| AIR Star2000 VLB w/ Weitek Power 9000 2MB | $370 |
| ATI Ultra Pro VLB 2MB VRAM 30M Winmarks | $365 |

**Monitor**

| | |
|---|---|
| 14" Monochrome Monitor | $90 |
| Impression 14" 1024x768x0.39DP | $205 |
| Impression 14" 1024x768x0.28DP | $250 |
| Impression 14" 1024x768NIx0.28DP | $270 |
| Impression 17" 1280x1024x0.26DP, BEST BUY!! Exactly MAG 17F like, just logo is different! | $885 |
| KFC 14" Multisync, 1024x768NIx0.28DP Digital-Control, Non-Glared | $355 |
| KFC 15" Multisync, 1280x1024NIx0.28DP Digital-Control, Non-Glared, Flat-Screen | $445 |
| KFC 17" Multisync, 1280x1024NIx0.26DP Digital-Control, Non-Glared, Flat-Screen | $780 |
| MAG 15F 15" 0.28DP 30-68KHz, 1280x1024NI | $500 |
| MAG 17F 17" 0.26DP 30-68KHz, 1280x1024NI | $930 |
| Viewsonic 5E 14" 0.28DP 1024x768NI 72Hz | $355 |
| Viewsonic 6E 14" 0.28DP 1024x768NI | $305 |
| Viewsonic 15 15" 0.28DP 1280x1024NI Digi.Cntrl | $505 |
| Viewsonic 17 17" 0.28DP 1600x1280NI Digi.Cntrl | $1050 |
| Viewsonic 20 20" 0.28DP 1600x1280NI Digi.Cntrl | $1660 |
| Viewsonic 21 21" 0.26DP 1600x1280NI Digi.Cntrl | $2040 |
| Nanao F340iW 15" 0.28DP 1024x768NI | $655 |
| Nanao F550iW 17" 0.28DP 1280x1024NI | $1075 |
| Nanao F560i 17" 0.26DP 1280x1024NI | $1650 |
| Nanao F660i 20" 0.31DP 1600x1280NI Trinitron | $2450 |
| Nanao F750i 21" 0.31DP 1600x1280NI | $2060 |
| NEC 3FGe 15" 0.28DP 1024x768NI 60Hz | $575 |
| NEC 4FGe 15" 0.28DP 1024x768NI 76Hz | $675 |
| NEC 5FGe 17" 0.28DP 1024x768NI | $1070 |
| NEC 6FG 21" 0.28DP 1280x1024NI | $2300 |
| NEC 3FG/4FG Filtering Lense | $75 |
| NEC 5FG/6FG Filtering Lense | $110/185 |
| Sony 1430 14" 1024x768 0.25DP | $565 |
| Sony 1730 17" 1024x768 0.25DP | $960 |
| Sony 2036 20" 1280x1024 0.30DP MPRII | $1990 |

**Modem:**

| | |
|---|---|
| Zoltrix Sendfax 96/24 Int. 9600 Send Fax/2400 Data | $27 |
| Zoltrix Standard Int. 96/24 9600 S/R Fax/2400 Data + Bitfax for Windows + MNP5 Software | $48 |
| Zoltrix 14.4K S/R Fax/Data V.32Bis, V.32, V.42Bis, V.42, MNP5 +Bitcom + Bitfax Internal/External | $140/175 |
| US Robotics Sportster 14.4K Data/Fax V32.bis, V.32, V.42 Internal/External | $165/185 |
| US Robotics Courier, HST, Dual Standard, etc. | $Call |
| Intel Satisfaxtion Modem/400e Internal/External | $385/400 |
| New Intel Fax Modem 14.4K Internal/External | $179/199 |

**Floppy Drive/Tape Backup:**

| | |
|---|---|
| Teac 1.2M 5.25"/1.44M 3.5"/2.88M 3.5" | $53/48/95 |
| Teac Dual 1.44M & 1.2M | $135 |
| Toshiba 2.88M 3.5" | $59 |
| Archive 250MB TapeBackup Internal | $150 |
| Colorado 250MB TapeBackup Internal | $170 |
| Tape Cartridge DC2120 for 250MB QIC-80 | $16 |

**KeyBoard/Mice/Software/Chassis/Misc:**

| | |
|---|---|
| 101 Chicony Enhanced | $20 |
| KeyTronic 101 Enhanced | $30 |
| Focus 2001 101 Enhanced Click | $36 |
| Focus 8000 111 with Calculator | $40 |
| Focus 9000 129 Programmable with Calculator | $60 |
| NorthGate OmniKey 101/102 | $70 |
| NorthGate OmniKey Ultra | $95 |
| MS Compatible 3-Button Mouse | $10 |
| Logitech First Mouse/Trackman | $30/75 |
| Logitech Mouseman Serial/Bus | $45/65 |
| Logitech Mouseman Cordless | $85 |
| MicroSoft Original Serial Mouse | $35 |
| New MicroSoft Ergonomic Serial Mouse V2.0 | $55 |
| MS DOS 6.0/Windows V3.1 Original (Registerable) | $49/59 |
| Windows NT V3.1 (Req. 12MB RAM & 75MB HD) | $355 |
| IBM OS/2 V2.1 | $170 |
| Standard Mini Tower with 200W PS | $55 |
| Premium w/PS Mini/Desktop/Med/Full Tower | $70/75/95/115 |
| Printer Cable 6"/10"/12" | $5/7/9 |
| 486 CPU Cooling Fan | $15 |
| Chassis Second Cooling Fan 3" or 3.5" | $20 |

**Multimedia**

**CD-ROM Drive:**

| | |
|---|---|
| Toshiba XM-3401B SCSI 256K Cache 200ms, 330KB/Sec, Multi-Spin/Spd Internal | $395 |
| NEC CDR-84JD-1 Int. SCSI 280ms 300KB/S | $425 |
| Texel DM-3024N Int. SCSI 265ms Multi-Spin/Spd | $345 |
| DTC CD-ROM Kit w/ 3150 SCSI Adaptor & Sftwre | $75 |
| CD-ROM Caddy | $6 |

**MultiMedia Package:**

| | |
|---|---|
| Creative Labs Multimedia Starter Kit includes: CD ROM, Snd Blaster Pro, MS BokShlf, etc. | $425 |
| Creative Labs Discovery CD 8 Upgrade Kit | $379 |
| Creative Labs Discovery CD 16 Upgrade Kit | $475 |
| Creative Labs Edutainment CD 16 Upgrade Kit | $495 |
| MediaVision Fusion CD 16 Internal Kit | $475 |
| MediaVision Pro 16 Multimedia System | $810 |
| MediaVision SubSystem CDPC XL | $1060 |

**Sound Card:**

| | |
|---|---|
| ProAudio Spectrum 16 w/ SCSI Interface | $149 |
| ProAudio Studio 16 w/ SCSI Interface | $209 |
| Pro Movie Spectrum | $279 |
| Creative Labs Sound Blaster Deluxe | $89 |
| Creative Labs Sound Blaster Pro Deluxe | $115 |
| Creative Labs Sound Blaster 16 ASP | $205 |
| Creative Labs Video Blaster | $309 |
| Creative Labs Wave Blaster | $230 |

**HardDisk**

**Western Digital**

| | |
|---|---|
| 213MB IDE WDAC1210 | $195 |
| 250MB IDE WDAC2250 | $220 |
| 340MB IDE WDAC2340 | $280 |
| 420MB IDE WDAC2420 | $400 |

**Maxtor**

| | |
|---|---|
| 213MB IDE 7213AT 64K 15MS | $200 |
| 245MB IDE 7245AT 64K 15MS | $225 |
| 345MB IDE 7345AT 64K 14MS | $295 |
| 540MB IDE MXT540A 256K 8MS | $770 |
| 345MB SCSI 7345S 64K 14MS | $380 |
| 540MB SCSI MXT540S 256K 8MS | $770 |
| 1.2GB SCSI MXT1240S 512K 8MS | $1230 |

**Quantum**

| | |
|---|---|
| 240MB IDE LPS240A 256K | $240 |
| 525MB IDE LPS525AT 256K | $595 |
| 240MB SCSI LPS240S 256K | $250 |
| 525MB SCSI LPS525S 256K | $595 |
| 700MB SCSI PD700 256K 10MS | $770 |
| 1.0GB SCSI P1050 512K 10MS | $919 |
| 1.2GB SCSI P1225 512K 10MS | $990 |
| 1.8GB SCSI P1800 512K | $1440 |

**Toshiba**

| | |
|---|---|
| 877MB MK438FB SCSI-2 12MS | $820 |
| 1.0GB MK537FB SCSI-2 12MS | $870 |
| 1.2GB MK538FB SCSI-2 12MS | $940 |

**Micropolis**

| | |
|---|---|
| 1.0GB IDE MC2112A 5400RPM 10MS 3.5" | $990 |
| 1.7GB IDE MC2210A 5400RPM 10MS 3.5" | $1490 |
| 1.0GB SCSI MC2112 5400RPM 10MS 3.5" | $990 |
| 1.7GB SCSI MC2217 5400RPM 10MS 3.5" | $1490 |

**Fujitsu**

| | |
|---|---|
| 520MB IDE M2624T 64K 12MS 3.5" | $675 |
| 425MB SCSI M2623SA 240K 11MS 3.5" | $545 |
| 520MB SCSI M2624FA 240K 11MS 3.5" | $665 |
| 1.2GB SCSI M2694SA 256K 10MS 3.5" | $1075 |

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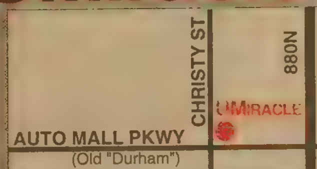

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|---|---|
| **PowerPort Gold for PowerBook** | **$399** |
| **PB DataLink w/ Voice FaxModem** | **$439** |
| **Supra 2400 Baud Modem** w/ Cable | **$99** |
| **Teleport Bronze II FaxModem** | **$109** |
| **Supra FaxModem v.32bis 14,400** | **$309** |
| **Teleport Gold v.32bis 14,400** | **$399** |
| **US Robotics Mac&Fax 14,400** | **$249** |

## Printer

| | |
|---|---|
| **NEC SilentWriter Model 95** | **$995** |

- **True 300 dpi Adobe PostScript II Printer**
- **8000-Page Toner & Cable Included**

| | |
|---|---|
| **Canon 10ex/Power Print Bundle** | **$439** |

- 360 dpi, Canon Bubble Jet Printer
- Compact, Portable--Perfect Powerbook Companion

| | |
|---|---|
| **StyleWriter II, w/ Cable, *In Stock*** | **$339** |

## Memory Upgrade

| | |
|---|---|
| **1 Meg Simms, 100/120ns** | In Stock |
| **1 Meg Simms, 80ns** | In Stock |
| **2 Meg Simms, 80ns** | In Stock |
| **4 Meg Simms, 80ns** | In Stock |
| **4 Meg Simms, Centris, Quadra 800** | In Stock |
| **6 Meg Board, PowerBook** | In Stock |
| **4 to 14 Meg Board, PB Duo** | In Stock |
| **4 to 10 Meg Board, PB 180** | In Stock |
| **4 to 10 Meg Board, PB 165c/180c** | In Stock |

## PLI Infinity Drives

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| | |
|---|---|
| **PII Infinity 44 SyQuest,** w/ 1 Cartridge | **$369** |
| **PII Infinity 88 SyQuest,** w/ 1 Cartridge | **$569** |
| **PII Infinity 88 SyQuest,** w/ 2 Cartridges | **$659** |
| **SyQuest 44MB / 88MB Cart.** | **$69/109** |

## Free Scanner

| | |
|---|---|
| **UMAX ScanOffice G/S Scanner** | **$895** |

- Ofoto, TypeReader,Publish It! Easy Included, $1000 Value
- Award-winning total office scanning solution

| | |
|---|---|
| **UMAX 630LE 600 dpi Color Scanner** | **$895** |
| **UMAX 630 600 dpi Color Scanner** | **$1095** |

- 24 Bit Photo-Realistic Color / 256 Gray-Scale
- Best Rated Scanner by MacUser Magazine
- Photoshop Version 2.5 Included

| | |
|---|---|
| **UMAX 840 800dpi Color Scanner** | **$1349** |
| **Arcus Plus 1200dpi Color Scanner** | **$2995** |

- 10 bit per pixel, 30 bit, 1 billion colors
- Excellent for professional prepress & image editing
- Slides, transparencies and X-ray images supported

## Radius

| | |
|---|---|
| **Precision Color Pivot** w/ Rebate | **$895** |

- Works on Centris 610, 650, Quadra 800 & 950

| | |
|---|---|
| **Radius Pivot Display** | **$639** |

- Crisp, Clear Full Page Viewing
- Portrait and Landscape Views

| | |
|---|---|
| **Precision Color 24XP Pro** w/ Rebate | **$484** |

- 24 Bit Accelerated Card for 16" and 14" Monitors

| | |
|---|---|
| **Radius TPD/19 Monitor** | **$729** |

- Works with Centris & Quadra Built-In Video Port

## CLEARANCE

| | |
|---|---|
| **Abaton Color Flat-Bed Scanner, *New*** | **$595** |
| **GCC WriteMove Portable Printer, *Used*** | **$199** |
| **Laserwriter IINT / NTX, *Used*** | **$895/995** |
| **Mac II, 2 MB/40 HD** | **$495** |
| **Mac Plus 2.5 MB W/ Keyboard, *Used*** | **$299** |
| **Sigma Multimode 19" W/ Card, *Demo*** | **$795** |
| **SuperMac Platinum 21" B/W, *Open Box, New*** | **$895** |
| **SuperMac 20" Trinitron Dual Mode,*Used*** | **$1999** |
| **Video Spigot, IIsi,Premiere, *New*** | **$279** |
| **RasterOps 24S, 24Bit Color Card for 14"** | **$399** |

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| 80 MB HD* | $295 |
| 120 MB HD* | $379 |
| 213 MB HD* | $595 |
| Full Cycle Charger | $139 |
| PowerPort Gold | $399 |
| DateLink Voice FaxModem | $439 |

*Upgrade/Swap Price
Labor Charge Extra

* Macintosh
Rebate
Up to $350

| | |
|---|---|
| **PowerBook Duo 230 4MB/80HD** | **$1479** |
| **Mac Classic II 4MB/80HD** | **$995** |
| **Mac Color Classic 4MB/80HD** | **$1119*** |
| **Centris 610 8MB/230HD/CD** | **$2069** |
| **Centris 660AV 8MB/230HD/CD** | **$2539** |
| **Quadra 840AV 8MB/230HD/CD** | **$3759** |
| PowerBook 145B 4MB/80HD | $1599 |
| PowerBook 165 4MB/80HD | $1849 |
| **PowerBook 165C 4MB/80HD** | **$1799** |
| **PowerBook 180 4MB/120HD** | **$2899** |
| PowerBook Duo Dock, *In Stock* | $849* |
| Apple CD 300, New Low Price | $409 |
| Apple PowerCD | $439 |
| NEC MacSync 14" Color, Centris | $409 |
| NEC 3FGe Multisync Color Monitor | $649 |
| Sony 1320 14" Color w/ Adapter | $424 |

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†External Unit Add $90 ea.

| | | | |
|---|---|---|---|
| Quantum ELS 42MB HD | $209† | Apple 40MB HD, *New* | $195 |
| Quantum ELS 85MB HD | $239† | Apple 160MB HD, | $239 |
| Quantum ELS 170MB HD | $299† | Fujitsu 520MB HD | $795† |
| Quantum LPS 240MB HD | $369† | Fujitsu 1.2 Gig HD | $1295† |

## Macintosh Rentals

Security Deposit Required

| Quadra 900<br>16MB/500HD | Mac SE/30<br>2MB/40HD | Mac Plus<br>2MB/20HD | PowerBook 145B<br>4MB/40HD |
|---|---|---|---|
| **$399**<br>Monthly | **$89**<br>Monthly | **$59**<br>Monthly | **$199**<br>Monthly |

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|---|---|
| **Mac Centris 650 8MB/230HD, *New Low Rate*** | **$79/Mo** |
| **Mac Quadra 840AV 8MB/230HD,** | **$124/Mo** |
| **Mac Quadra 950 8MB, *New Low Rate*** | **$113/Mo** |
| **Apple 14" Color Display** | **$19/Mo** |
| **Apple 16" Color Display** | **$44/Mo** |
| **NEC Silentwriter 95, *New Low Rate*** | **$35/Mo** |
| **LaserWriter Pro 600, 8MB RAM** | **$67/Mo** |
| **LaserWriter Pro 630, 8MB RAM** | **$88/Mo** |
| **SuperMac 20" Multimode XL Trinitron** | **$92/Mo** |
| **SuperMac 21" Platinum Monitor** | **$39/Mo** |
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# The Apple Feeding Frenzy

## *As Viewed By BMUG*

**BY DAVID MORGENSTERN**

A couple of months ago an item in the what-could-they-have-been-thinking department marched around the networks. The head of the Boston Computer Society, Bob Grenoble, was featured in a front page story in the *Boston Globe* newspaper. It came out that Grenoble pretty much ignores his computer, preferring to take notes on a legal pad, and keeps track of things with a paper appointment book. He even admitted that he had once tried balancing his checkbook with his computer, but "could do it more easily with a pen and a calculator." Even worse, he used the word *typewriter* in the same breath as word processing! The howls of dismay at this Luddite recidivism from BCS technophiles could be heard across the country.

This has never been a concern at BMUG. I can assure everyone that Steve, our director, uses his computer(s) way too much. It's not just telecommunicating, word processing, and number crunching for him—it's all the games! He's also made sure that Robin Williams' book, *The Mac Is Not A Typewriter* is always available.

**B M U G**

### THOSE WERE THE DAZE

Have you ever been in a real fight? A real fight for your skin, a knock 'em down and keep 'em down affair? Probably not. Most fights are small power plays. There's a little pushing and shoving to take someone down a peg. It's over when someone is proven to be top-dog—but only for the moment.

These categories of physical combat are mirrored in the business world, where fax replaces fist. But it's hard to understand the unrelenting barrage of shots leveled at Apple by some industry pundits. Layoffs? Punch! Newton? Smash! PowerPC? Jab! Keep kicking 'em when they're down.

What's going on? What could Apple have done (or not done) to deserve such treatment? Did some astrological or statistical anomaly cause all the nation's leading computer geeks to wake up on the wrong side of the disk drive?

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It's not too much of a stretch to see some of the reasons. I don't think that they stem completely from a careful evaluation of technological innovations, but rather from the emotions of trust, anger, and confidence.

This was not a stellar year for Apple. They've had a long fall from being the cover page darlings of the media, and the industry showcase for political bigwigs. All the recent stories have had a dark side—management shakeups, layoffs, waves of price reductions, and a controversial technology introduction. When a company is heading up, it becomes a focus of optimism, and the gloom is overlooked. But when they become used to thinking pessimistically about Apple, everything turns sour.

Analysts, reporters, and computer gurus are users too. They are forced to make the same decisions as everyone else; which platform, model, and software to purchase. Just as all other computer-wise users, they are also asked to give off-the-cuff consultations to family, friends, and anyone they happen to meet on the street, bus, or airport lounge. It used to be a no-brainer to recommend a Macintosh. Nowadays it's just a shade harder.

Years ago, there was the Macintosh and the PC, and that was it. Yes, there were many other wonderful and important computers, but the lines were drawn between these two personal computing paradigms. Users could choose the safe-and-sane business machine, or the Mac, with its radical graphical user interface. It's hard for today's new users of any desktop computer to understand the notion that the GUI itself was controversial.

> **Steve Costa, BMUG Executive Director: "Apple still has one of the best engineering teams, and some of the best programmers.**

Today, almost all computers are "graphics" capable, and are sold with some windowing environment. This software may not be as elegant and integrated with its hardware platform as the Macintosh, but it's much better than a straight command line interface. The Mac is now an acceptable word to use in polite company, and no longer considered the commie plot to destroy the American way of computing. But today, when someone buys a DOS/Windows machine, the family is not sent into mourning—for long. The interface chasm still exists, but its boundaries are slightly closer together than before.

These trends have made it increasingly hard for experts to be infallible know-it-alls. They don't know how to answer some questions. Apple keeps putting out a cornucopia of models and product lines. Only those with an advanced degree in Marketing have a prayer of understanding the Performa. Or why it's a success. The prices keep dropping and dropping. The Newton and that handwriting thing. It's all Apple's fault. They've made our lives a living hell. (Beavis: He said *hell.* Butthead: heh heh heh...)

It's the fear of making a mistake. It's the fear of being blamed. There's really no difference if we're wrong or right at this time—we'll be blamed for giving any recommendation, good or bad, correct or faulty. The price will drop a couple of months later and it will be on our/your heads. It's the old curse to be living in times of interesting computers.

We are experiencing the end of an era of personal computing. The first Macintosh created a baseline for users' expectations of what a computer should be. Apple and the Mac programming community have kept the technology coming. The current top-of-the-line Macintosh AV models are the dream progeny of the 128K Mac. The technological capabilities of these machines are amazing, and the software that runs on them is very cool.

But BMUGers are waiting for the next era of personal computing, which we true believers predict will arrive four months from now, with the arrival of the PowerPC-based computers. I can hardly wait for the NeXT ten years to pass, so I play with my future magical software and hardware toys.

## APPLE A LA BMUG

I asked some BMUGers to give their thoughts on Apple's tough times. Here are their takes on the current scene:

- **Betsy K. Brahm, former BMUG board member and current Farallon technical support:** "I don't think you can look at Apple problems without looking at the computer industry as whole. A few years ago, Spindler and Sculley decided that Apple needed to compete head on with the PC industry to gain market share. This brought on all different models, such as the Performas and the PowerBooks.

"The current problem has been the complete price dive in the computer hardware market. PC prices have been dropping rapidly, and Apple isn't the only computer manufacturer having problems. Dell, Gateway 2000, a couple of others are suffering, while NeXT died. Producing hardware is expensive, and margins are low. The real money is in software—which explains the pressure on Apple to license the interface."

- **Steve Costa, BMUG executive director and primary Apple watcher:** Steve agreed with Betsy that there's a computer industry-wide slump, and then continued: "The only thing that Apple can really be faulted for is believing their own press releases. That's what it came down to. They believed that they were the best, and therefore could charge more than the rest of the market. When the entire world changed, they were a bit slow to recognize that. Even then only by six months. I'm sure they will come out of it.

"Apple still has one of the best engineering teams, and some of the best programmers. They're even profitable—more or less. They have lots of good ideas.

"They are the only company with the power to make major changes in the computer world. They still have a good philosophy about computing. You can't dismiss this fact."

- **Tony Fleming, leader of the BMUG Multimedia Special Interest Group:** "The issue boils down to whether we as consumers would rather be spoon fed: where we get only a few, perhaps insufficient Macs, brought to market, and spread out over time with inflexible pricing. Or whether we should be force fed: where we get a bunch of Macs, each one just a bit more sufficient than the previous, and with roller coaster pricing.

"My thought is that both these 'strategies' miss the bullseye. Apple has the input and information to get it right. They really only need to listen to BMUG! For instance, in the music and multimedia SIGs, we have long urged the addition of digital signal processors and other important features Apple has only now added to the new AV Macintosh. They do not need to make new Macs for niche markets. They need to make a powerful modular box that will have a long shelf life.

"I agree with all p.o.'ed users that have bought Macs only to have them obsoleted, or price reduced before they're unpacked. This has been the case for a long time. Apple must deliver the Power Macs at reasonable pricing as soon as possible—and not the least efficient model, either. This will be important for software developers in the present situation, always trying to keep up with the rapid succession of boxes and features. Software is where it's at."

## BMUG IN THE NEWS

- A special citation was awarded the *BMUG Newsletter* at the Intergalactic 6 Users Group Officers Conference, held last June. Every year they hold a newsletter contest with *InfoWorld* and Lotus. "This biannual, 400-page, perfect-bound publication would be comparable to publishing a 72-page magazine monthly. This in itself makes the publication unusual. While each issue's sheer size is impressive, it should be noted that both in the range of topics covered and in the overall quality of its feature articles, BMUG provides its readers with excellent information and background, well written and well edited." Remember, this great read is available only to BMUG members—so join today!
- *Boardwatch* magazine, the country's premiere telecommunications magazine, holds an annual contest of the one hundred best bulletin board systems in the country. Planet BMUG was voted the fourteenth best BBS on the *Boardwatch* Top 100 list, and BMUG Boston, our new 11-line Boston BBS was number ninety-one! We were the only Macintosh systems on the list.

It was only a year ago that the BMUG bulletin board became the 17-line Planet BMUG, running a FirstClass graphic user interface. Another advantage to your BMUG membership.

- If you're getting up to speed with QuickTime multimedia, then you really should get a hold of TV-ROM Too, BMUG's second Macintosh CD-ROM of publicly distributable QuickTime movies. The disc contains 600MB of digitized movies, sounds, and compressed still images that users can incorporate into their own creations. The files, media-speak for "content," are free of any copyright restrictions, and can be used without the hassle of finding the original creators and licensing the material. Our only requirement is that BMUG and the original artist, when named, be properly credited. It doesn't get any easier than this—even if you're producing the content yourself!

The collection has movies in a variety of sizes and lengths. Two HyperCard stacks on the CD make it easy to find and browse the files. A preview card lets users play or display the file, also giving a cheat sheet of frame rate, size, and duration.

TV-ROM Too includes the QuickTime 1.6.1 system extension, and the Movie Player application under license from Apple. Also on the disc are the new Sound Manager 3.0 and Sound Control Panels, which will improve playback performance of QuickTime movies with sound.

The $50 disk is easy to order from the BMUG office through our phone order number, 800-776-BMUG (VISA and Mastercard only). There's also a $4 shipping and handling charge for each order.

## HAVE WE GOT A DEAL

The future of publishing is here and now for us to see. You can see it in Rick Smolan's *From Alice to Ocean* book and disk combination set. The Alice combo is a $50 coffee-table picture-book, with two multimedia CD-ROMs that extend and amplify the photos and text. BMUG is offering *MicroTimes* readers the chance to buy the set for only $35. We only have a limited number of them, so as the television hucksters say, "the offer is good only while supplies last." There's also a $4 shipping and handling charge for each order.

*continued on page 200*

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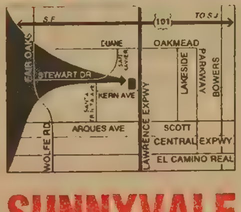

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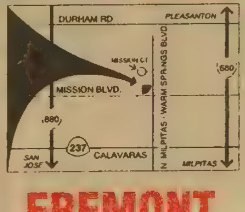

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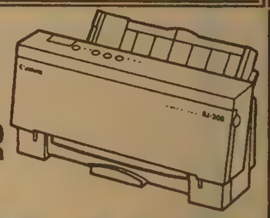

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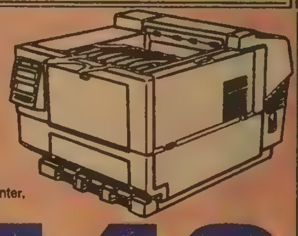

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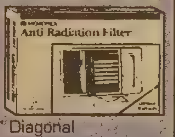

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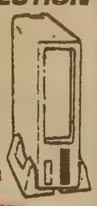

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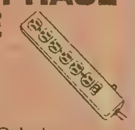

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## Apple® Macintosh® IIvx™ 4/80 512K VRAM

The Macintosh IIvx is ideal for users who seek faster performance, more memory, and future expandability. System memory can be expanded from 4 to 20 megabytes. It comes equipped with a math coprocessor and cache card for increased speed. And it can be equipped with an internal CD-ROM drive, for instant access to thousands of volumes of information stored on CD.

68030 32MHz CPU • 32K Memory Cache
68882 Math Coprocessor • 512K VRAM
4MB RAM Expandable to 20MB • 80MB Hard Drive
3 NuBus Slots • Supports 7 SCSI Devices
2 Serial Ports • 2 ADB Ports • Appletalk Built-In.

*Monitor & Keyboard extra.*

#1738487

**$999**

## Apple® Macintosh® Centris™ 660AV 8/230 CD-ROM

With an innovative architecture that delivers new capabilities in telecommunications, video, and speech the Apple® Macintosh® Centris™ 660AV computer helps you work and communicate more effectively than ever before. The Macintosh Centris 660AV combines the horsepower of a 25-megahertz 68040 microprocessor with a 55-megahertz digital signal processor (DSP) to achieve outstanding performance. The DSP handles telecommunications, speech, and audio functions, allowing the 68040 processor to handle other tasks, thereby increasing the total system performance.

Monitor and keyboard not included

#1820328

**$2499**

## Apple® 14"AV Monitor

For Centris 660AV And Quadra 840AV

#1820421

**$699**

## DAYSTAR DIGITAL
## POWERCACHE 50

50MHz 68030 all Mac
May require Adapter
P31UV-050

#1834082

**$699**

## ENHANCE
## MD8-TT PhoneNET COMPATIBLE CONNECTOR BOX

8-PIN mini DIN

#1454109

**$9.99**

## SONIC PRODUCTS
## SONIC AAUI TWP TRANSCEIVER

Apple AUI TWP ethernet transceiver.

01-SSC-0710

#1827521

**$69.99**

## USRobotics
## MAC & FAX® 14,400 BAUD EXTERNAL FAX/MODEM

A combination fax and modem designed for use with the Macintosh. Send and receive Group III fax transmissions. Supports data speeds from 300 to 14,400 and fax speeds from 2400 to 14,400. Fully CCITT V.32 bis and CCITT V.29 compatible. Includes V.42/MNP 2-4 error control and V.42 bis/MNP 5 data compression for thoughput of up to 57,600 bps.

**$199.99**

#1759923

## MX
## VOMAX 2000 THE ULTIMATE MOBILE AND HOME OFFICE - VOICE MAIL/FAX MAIL/MODEM

- World's first Voice and Fax Mail Box
- Stand alone digital answering device
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- PC DOS, Windows and MAC support
- Group III fax compatibility
- Touch tone programmable
- TV Fax voice annotation (Optional - Available Summer '93)

#1796689

**$399**

## NU DESIGN
## EXTERNAL 105MB HARD DRIVE

105MB EXTERNAL HARD DRIVE FOR MAC

#1842131

**$249**

## AppleCD 300™ External

The AppleCD 300™ drive allows you to access text, graphics, and sound stored on CD-ROM discs. It's a cost-effective tool for easily accessing the thousands of volumes of information stored on CD-ROM discs.

Data transfer rate 300K per second
256K Buffer • Data access time 259ms
2.50 PIN SCSI connectors • 2 RCA Jacks
Headphone Jack • Reads Multi-session Kodak Photo CD Disk

#1756850

**$379**

## Apple® GEO PORT ADAPTER

For Centris 660AV And Quadra 840AV only.
Fax and data up to 9600

#1834392

**$124.99**

## Apple® PowerCD™

The PowerCD™ from Apple® is the first portable, three-in-one CD player for CD-ROM, Photo CD, and audio compact discs. Designed for use with Apple Macintosh personal computers, including PowerBook and Performa computers, the PowerCD lets you give high-quality presentations anywhere, anytime. You can tap into thousands of existing computer CD-ROM discs, including reference libraries, databases, clip art and graphics collections, educational and entertainment programs, literature, and interactive books. To get you started, the PowerCD comes with a collection of CD-ROM titles and Kodak Photo CD discs for use at home, at business, or in education

#1820409

**$499**

## MASS microsystems
## MASS EXTERNAL SYQUEST 105 MAC

105MB EXTERNAL SYQUEST FOR MACINTOSH
14 5MS ACCESS W/ SOFTWARE CARTRIDGE
DP105 #1796704

**$799**

## MASS microsystems
## MASS FLOPTICAL 21 MAC

21MB FLOPTICAL DRIVE FOR MAC
80MS
FP21
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**$379**

## MAC 105 KEY KEYBOARD

For all Macintosh extended

#1795965

**$69.99**

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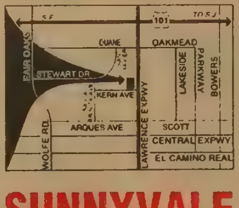

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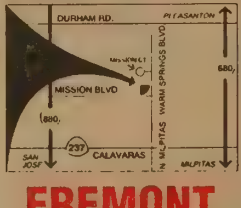

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# Apple® Macintosh® Computers and Accessories

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### Newton PROFESSIONAL COMMUNICATIONS SYSTEM

Newton MessagePad

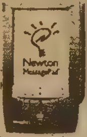
Introducing the Newton™ MessagePad™ communications assistant from Apple Computer, Inc. Newton makes it easy to communicate and organize information.

- Built-in calendar, address book, notepad and communications capabilities
- Lets you send a fax, receive a page, print and "beam" to another Newton*
- Send and receive electronic mail
- Works with PCs and Apple® Macintosh® computers*
- Additional software and storage available
- Easy and fun to use
- Fits in your pocket, weighs under 1 pound.
- Battery powered
- Fax/modem.

Message Card and Newton Connection software sold separately.
#1812442

**$779**

### Newton PROFESSIONAL COMMUNICATIONS SYSTEM



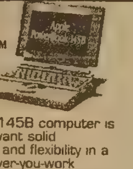
Introducing the Newton™ MessagePad™ communications assistant from Apple Computer, Inc. Newton makes it easy to communicate and organize information.

- Built-in calendar, address book, notepad and communications capabilities
- Lets you send a fax, receive a page, print and "beam" to another Newton
- Send and receive electronic mail
- Works with PCs and Apple® Macintosh® computers
- Additional software and storage available
- Fits in your pocket, weighs under 1 pound
- Easy and fun to use • Battery powered
- Complete with Macintosh Interface
- Fax/modem
- Newton Connection software

#1812453

**$899**

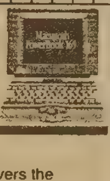
### Apple® PowerBook™ 145B 4/80



The Apple® PowerBook™ 145B computer is designed for those who want solid Macintosh® performance and flexibility in a convenient, take-it-wherever-you-work notebook computer. Although it fits easily in your briefcase, this innovative notebook computer offers the full power and ease of Macintosh computing. The PowerBook 145B makes it easy to work on the road or on your desk. The sleek, ergonomic design includes standard-size keyboard, integrated trackball and palm rest, and a bright, full page-width display. 4MB RAM • 80MB Hard Drive
#1802003

**$1499**

### Apple® Macintosh® PowerBook™ 165 4/80



The PowerBook™ 165 delivers the processing speed, flexibility, and convenience you need all in a package that weighs just seven pounds and fits into a briefcase. You can also connect to a larger display for more work space.
#1833715

**$1799**

### Apple® Macintosh® Color PowerBook™ 165c 4/80

Macintosh PowerBook 165c

With the PowerBook™ 165c, the impact and appeal of a bright, vivid color display is now available on a portable Macintosh computer. It delivers the processing speed, flexibility, and convenience you need all in a package that weighs just seven pounds and fits into a briefcase. It also features a backlit passive-matrix display that gives you 256 brilliant colors. You can also connect to a larger display for more work space

**$1699**
#1767393

SUPERMAC TECHNOLOGY

### E-MACHINE POWERLINK™ PRESENTER MINI-DOCK FOR DUO NOTEBOOKS

Plug in PowerLink Presenter to your Apple PowerBook Duo and you instantly have created a powerful presentation system you can take with you anywhere. It provides up to 256 colors (8-bit) on displays from 12-16/17 inches in size, at resolutions from 630 X 800 to 832 X 624. And you can even use it display on a standard TV set using its on-board video encoder and NTSC video connector.

**$449**
#1822116

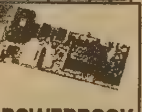
### 14,400 BPS MODEM/9600 BPS FAX FOR THE MACINTOSH® POWERBOOK™

PowerPort/Gold offers the highest performance of any fax/modem available for the Macintosh PowerBook. If you are an intensive user of remote network dial-in software, such as AppleTalk Remote Access (ARA), or if you routinely perform time-critical modem transfers, PowerPort/Gold is the only choice for you. Using ARA over a telephone line, you can access a file server or files on your desktop computer, check your E-mail, utilize a remote printer, just as if you were at the office and connected to an AppleTalk network. With PowerPort/Gold and ARA, you are never out of touch with important news, information, or documents. PowerPort/Gold lets you send and receive faxes at 9600 bps. With a data transfer rate of 14,400 bps, PowerPort/Gold provides the highest performance available for yse with on-line services or for use with AppleTalk Remote Access.
#1735613

**$349**

PIICEON
A Dynatech Company

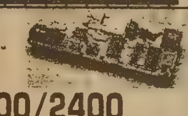
### PIICEON FAX/MODEM FOR THE APPLE POWERBOOK



PIICEON'S Dispatcher 14,400 data fax/modem, the most powerful by any manufacturer for the Apple PowerBook, is an intelligent, microprocessor-controlled communications device that operates at 300-14,400 bps in data mode and 2,400-14,400 bps in fax mode. With V.42 bis, MNP 5, MNP 10 and Group III fax capability, you simply cannot buy a better modem for any computer at any price. PIICEON's modems are FCC and DOC approved, operate in full duplex over the telephone network and comply with CCITT and EIA recommendations
#1793860

**$269**

MX™



### 9600/2400 INTERNAL MAC MAX FAX/MODEM FOR POWERBOOK

All Powerbook exp. 100 • Microphone
#1802368

**$\$139^{99}$**

### POWER STRAP POWERBOOK

Carry strap for Macintosh Powerbook 140 though 180
Black
1253 Steel
#1833874

**$\$29^{99}$**

### POWERBOOK WETSUIT BLACK

Carry case for Apple Powerbook
Black
#1821466

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Broderbund

### MYST

Myst is an adventure game unlike any other, with stunning 3-D photo realistic worlds. Myst is a surrealistic exploration, where every vibrant rock, scrap of paper and sound may hold vital clues to your unraveling a chilling tale of intrigue and deceit.

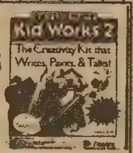
Mouse, hard disk, System 7.01 or higher and a CD-ROM drive required

MAC
#1838260

**$\$59^{95}$**

Davidson.

### Kid Works 2



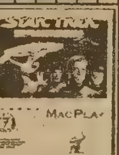
Kid Works 2 combines a wordprocessor, point and advanced text-to-speech technology all in one. With the ability to convert text-to-pictures and pictures-to-text, children learn to express their thoughts both visually and in writing.

MAC
#1756780

**$\$32^{95}$**

Interplay

### STAR TREK 25TH ANNIVERSARY FOR MAC



Combines a realistic 3-D space flight simulator with a wide variety of role-playing adventures to create a gripping game of galactic exploration. Blast through thousands of state-of-the-art, 3D digitized space action scenes. Scan and survey hundreds of fractally generated worlds.

MAC
#1825437

**$\$32^{95}$**

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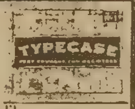
### Typecase for Mac Volume 1



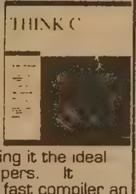
This award-winning library includes 100 foundry-quality fonts. Includes both Postscipt Type 1 and TrueType fonts on diskettes and a bonus CD-ROM disc a Typecase exclusive fully compatible with Postscript printers. ATM, and TrueType for System 7.

#1796070

**$\$42^{95}$**

SYMANTEC.

### THINK C



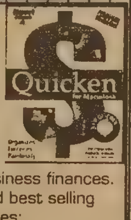
The professionals choice! Think C provides unsurpassed turnaround time, making it the ideal tool for serious developers. It features an extremely fast compiler an even faster linker, a multi-window tent editor, and a powerful source-level debugger. The editor, compiler linker and debugger all work together to help you work faster.

MAC
#155675

**$\$196^{95}$**

Intuit

### Quicken VERSION 4.0 FOR MAC



Quicken 4.0 for Mac is the fastest, easiest way to organize personal and small business finances. This award winning and best selling finance software includes:

- Investment Tracking
- Loan Amortization
- Tax Schedule reports and links
- Over 100 New Features

**$\$44^{95}$**
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### THE NORTON UTILITIES MACINTOSH 2.0

**The Essential Utility Solution for Data Recovery, Protection, and Backup**

NORTON UTILITIES
SUM

Norton Utilities 2.0 now includes two award-winning softwares: Norton Utilities and SUM. The combination of these two products will provide you with advanced disk repair and data recovery, automatic backup, data security and productivity enhancements.

MAC
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### My Advanced Label Designer

MyLabelDesigner

With my Advanced Label Designer, you can choose from over 100 pin-fed or laser label formats or design your own in any size! You'll create great looking labels, shipping labels, price tags, video/audio cassette labels and a lot more.

MAC
#1704532

**$\$34^{95}$**

Spectrum HoloByte

### IRON HELIX CD-ROM

Iron Helix is a science fiction thriller that immerses you in a great paced virtual reality filled with danger and intrigue. Control a robot probe or navigate through dozens of corridors and rooms. This CD action adventure game looks and feels more like a movie than a game.

MAC
#1801471

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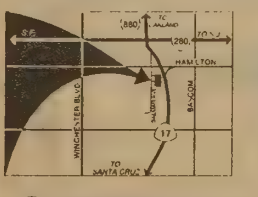

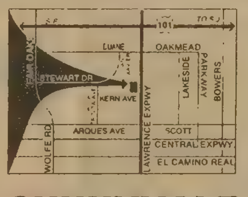

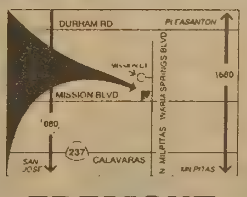

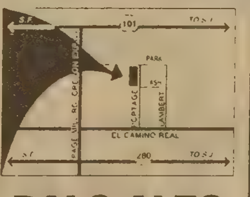

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MAC
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**$27⁹⁵**

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**MATH BLASTER Plus! For Mac**

New Math Blaster Plus rockets into a new dimension with cosmic new activities and graphics, including an arcade style game which is out of this world. It covers addition, subtraction, multiplication, division, fractions, decimals, percents and teaches over 750 math facts and problem solving skills

MAC
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**Reader Rabbit 2**

Reader Rabbit 2 is designed to motivate first and second grade level children to read on their own as they build a foundation for successful reading. It helps children with:
Word Building • Vowel Sounds
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**THE PLAYROOM**

Playroom turns child's play into child's learning. They learn about letters, numbers and time. More important, they learn that learning itself can be an exciting adventure

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**SPECTRE SUPREME**

In Spectre Supreme you will have to contend with a host of new enemies with your new arsenal of weapons. You can increase or decrease level of difficulty and drop through a trap door to explore negative cyberspace! Over a dozen network scenarios with 8 player capabilities over multiple zones.

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**ARTHUR'S TEACHER TROUBLE**

Living Books are interactive electronic storybooks on CD-ROM. They are stories touched by magic and brought to life with characters and pictures that talk, move, sing and dance.

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**$42⁹⁵**

**Apple® System 7**

Macintosh® System 7 is one of the most significant advances in personal computing since the introduction of MAC®. It gives your MAC powerful, new capabilities and makes it even easier to use. It also paves the way for a new generation of advanced MAC applications.

#1699898
**$98⁹⁵**

SYMANTEC.

**SAM VIRUS DETECTOR MAC**

The best selling, highest rated virus protection, detection and repair program MAC.
#1464238

**$74⁹⁵**

BERKELEY SYSTEMS

**After Dark**

After Dark provides over 30 different displays to prevent screen burn-in. You can choose any style including lightning bolts, abstract art, crawling worms, a jump-to-light-speed or a basic dimmer.
MAC
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**Microsoft OFFICE 3.0 for Windows**

MS Office is all that you need for your office. Four top applications in one box.
MS Excel, MS Word, MS Power Point and MS Mail. #1699452

**$469**

**640 x 480 14" MAC COLOR MONITOR**

.28 Dot Pitch • 640 x 480
With Cable
CM2080 #1748516

**$399**

**COSTAR 40100 AddressWriter Printer**

IBM or MAC
Envelope, Lables, Postcard
w/Software and cables
#1660948

CO STAR
**$299**

**UMAX 600 DPI COLOR MAC SCANNER WITH APPLE INTERFACE**

PHOTOSHOP LITE • 603LE MAC
#1795426

**$799**

**SONY 1304S 1024 x 768 14" MULTISCAN MONITOR**

640 X 480 Up To 1024 X 768
Non-Interlaced • .26mm Dot Pitch
Trinitron Black 14" Screen
Shadow Mask • Tilt 'n' Swivel Stand
Reduced Magnetic Frequency
Includes Mac Adapter
#1830516

**$499**

**SAMPO AMERICA**

**14" MAC VGA MONITOR**

30 TO 40 KHZ WORKS WITH ALL MAC EXCEPT QUADRA
.28 DOT
14" LARGE SCREEN
SAMPO KDM-1455A
#1735381

**$379**

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**DeskWriter C Color InkJet Printer**

***COLOR INKJET OUTPUT AT 300 DPI!***

Prints in Color or Black and White
Appletalk Interface • 100 Sheet Paper Feeder
*Whisper Quiet* • 3 Year Warranty
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**$399⁹⁹**

Supra Corporation

**EXTERNAL 14,400 BAUD MAC FAX/MODEM**

External 14,400 Baud Fax/Modem
MNP 2-5 Hardware • V.42BIS
For Macintosh #1821400

**$179⁹⁹**

**AppleCD Multimedia Kit**

The high-performance AppleCD Multimedia Kit for Macintosh computers offers all the components you need to advance your Macintosh into the CD-ROM and multimedia revolution. This multimedia kit gives you access to the wealth of business resources, educational programs, reference libraries, software, database, clip art and games available on CD-ROM. It comes complete with an external AppleCD 300 external CD-ROM drive, AppleDesign Powered Speakers, all necessary cables and software and up to five CD-ROM titles
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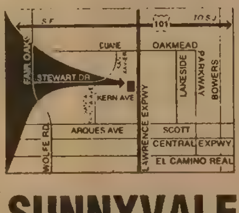

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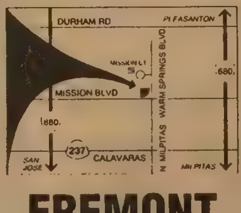

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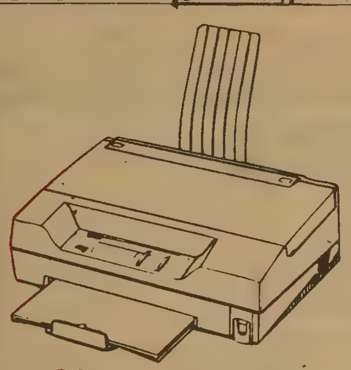
Professional Quality Graphics • 2 Year Warranty

**EPSON® *ActionPrinter*™ 3250**



## 24 PIN PRINTER

50 Sheet Paper Cassette Tray • Quiet
ESC/P2 Control Language • Simple
Control Panel • Two Year Warranty

**$179**

AP-3250
#1667299

## LQ-570+

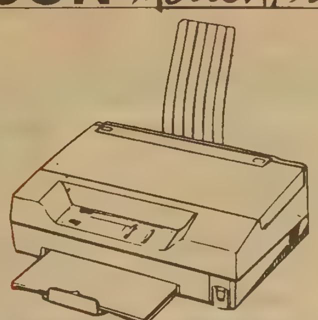
## 24 PIN PRINTER

**w/ SCALABLE FONTS!**

80 Column • 337 CPS Draft Mode
112 CPS Letter Quality • Four Scalable Fonts
360 dpi with Optional Film Ribbon
#1612004

**$239**

**EPSON® *ActionPrinter*™ 2250**



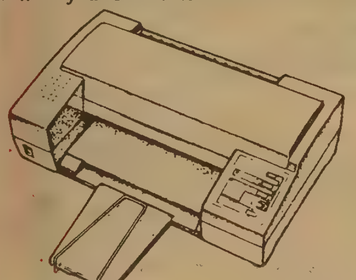
## 9 PIN IMPACT

**DOT MATRIX PRINTER**

50 Sheet Paper Cassette Tray
240 CPS Draft, 48 CPS NLQ
Quiet • 2 Year Warranty
#1729120

**$127.95**

**EPSON**
*Stylus*™ 800
INK JET PRINTER

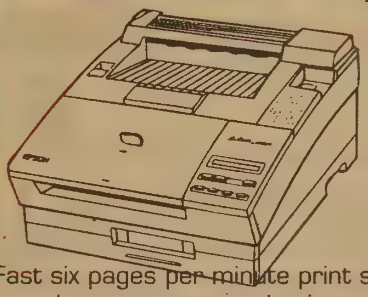


EPSON C106001
Stylus 800 Ink Jet Printer
(2 year warranty)
360 X 360 DPI "Laser-Sharp" printing
ESC/P2 LQ 7 Type Face with 4
Scralable Fonts
#1782785

**$289***

*After $50 manufacture rebate. In store cost $339

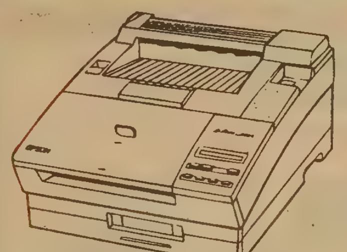
**EPSON® *ActionLaser* 1000**



Fast six pages per minute print speed makes you more productive • HP LaserJet IIP and Epson dot matrix compatible • 14 resident fonts. 512KB memory expandable to 6.5MB on motherboard 6000-page, single element imaging cartridge • Optional Adobe Postscript. Two year limited warranty.
#1760237

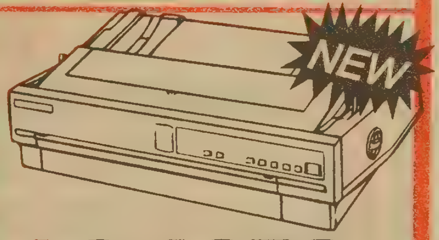
**$629**

**EPSON® *ActionLaser* 1500**



- Fast six pages per minute print speed.
- 300 X 300 dpi resolution with MicroArt printing and RITech technology.
- 14 resident fonts, 13 scalable to any size.
- LaserJet™ III and Epson dot matrix campatible.
- 1MB memory expanable to 5MB on motherboard #1798706

**$688**



## LQ-1070+ 24-PIN PRINTER

136 Column • 11 Fonts
4 Scalable Fonts • 315 CPS Draft Mode
105 CPS
NLQ Mode #1821927

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**Service EPSON®** Extra Care Certificate
for 1 year extended warranty service

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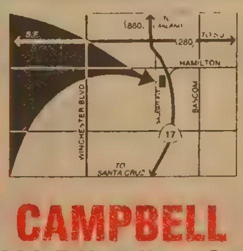
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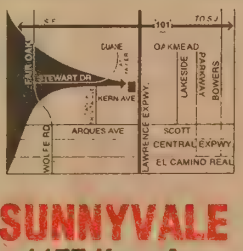
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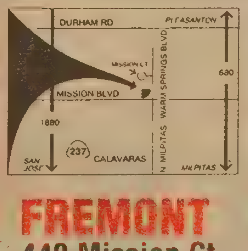
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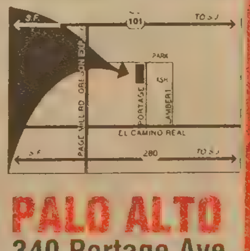
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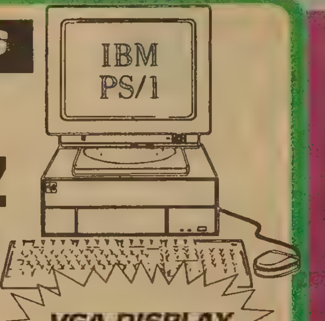
## 129MB VGA SYSTEM



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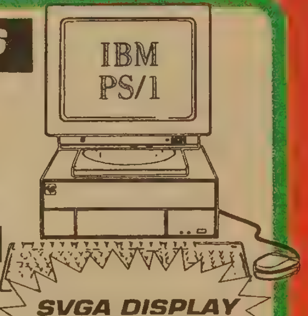

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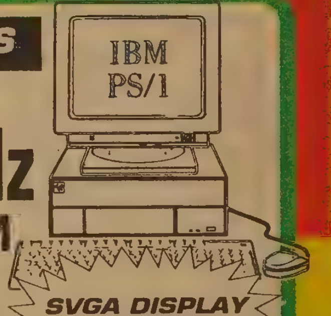
## 253MB SVGA SYSTEM



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IBM Mouse • IBM Keyboard • FAX/Modem
Novell® certified
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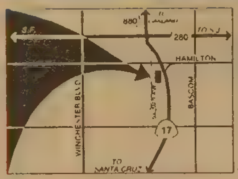
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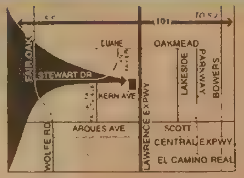
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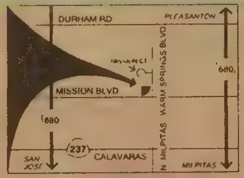
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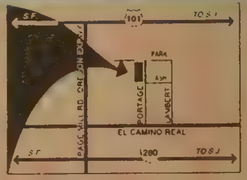
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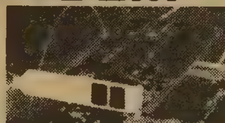
# MODEMS

## INTERNAL DATA/FAX MODEM DATA PORT™ 14.4/FAX



**All-in-one high-speed V.32bis Fax/Modem**

Delivers the highest performance, reliability, and compatibility in the industry. Tested, proven the leader in connecting calls, even on noisy, impaired lines.

The DataPort 14.4/Fax Modem delivers data at line speeds up to 14,400 bps. That's fast! But combined with its advanced, optically-coupled phone line interface and V.42bis data compression and error correction, you gain effective data throughput of up to 57,600 bps—nearly 24 times faster than 2,400 bps modems—on "real world" phone lines! This high performance significantly saves long distance costs.

The DataPort 14.4/Fax Modem expands your personal computer into a fax workstation. You can send and receive faxes without ever waiting in line; and send presentation-quality faxes!

#1751420

AT&T

**$249**

## EXTERNAL DATA/FAX MODEM DATA PORT™ 14.4/FAX

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Delivers the highest performance, reliability, and compatibility in the industry. Tested and proven to be the leader in connecting calls, even on noisy, impaired lines.

The DataPort 14.4/Fax Modem delivers data at line speeds up to 14,400 bps. That's fast! But combined with its advanced, optically-coupled phone line interface and V.42bis data compression and error correction, you gain effective data throughput of up to 57,600 bps—nearly 24 times faster than 2,400 bps modems—on "real world" phone lines! This high performance significantly saves long distance costs.

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**$279.99**

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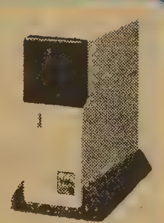
ViVa MODEM

## VIVA EXTERNAL 14,400 BPS FAX/MODEM V.32 BIS



Send/Receive
CPI 502402
#1704646

**$184**

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## 14,400 BAUD INTERNAL FAX/MODEM

V.42 • CPI 502702 • Winfax Software
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ViVa MODEM

**$159.99**

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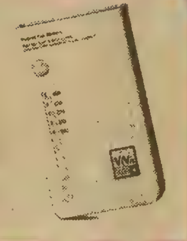
## 2400/9600 POCKET FAX/MODEM



2400B Modem
9600B Pocket Size Fax • AC/DC
CPI 504106
VIVA 2496P
#1704679

ViVa MODEM

**$99.99**

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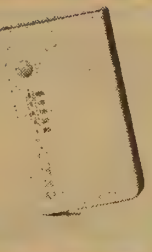
## 14,400 BAUD POCKET FAX/MODEM



14.4/14.4 Pocket Fax/Modem
57,600BPS MAX
CPI 504107
#1809664

ViVa MODEM

**$289**

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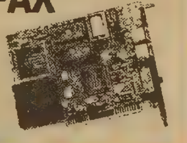
## INTERNAL 9600BPS SEND 4800BPS RECEIVE FAX 2400 BPS MODEM



CPI 504504
#1704691

ViVa MODEM

**$49.99**

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## EXTERNAL 9600BPS SEND 4800BPS RECEIVE FAX 2400 BPS MODEM

CPI 504509
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ViVa MODEM

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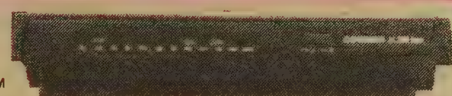

## COURIER™ 14,400 BAUD EXTERNAL HST DUAL STANDARD MODEM w/MNP1-5

V.32BIS, V.32, V.42,
V.42BIS External
US Robotics #000093-0
#1639074

**$799.95**

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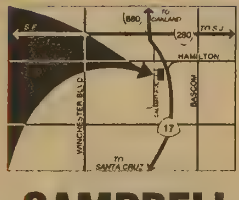
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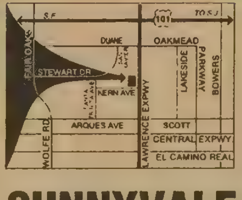
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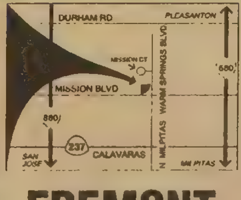
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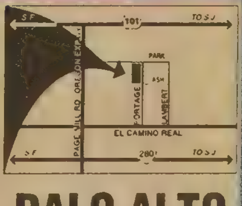
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Super High Speed V.32 BIS Protocol
Quick Link II Communication Software
PM14400FX #1667912

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PM2400F #1741737

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**LIFETIME WARRANTY!**

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V.32 V.42 V.42 BIS • QUICK LINK 11
#1757770

**$199**

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14,400 DATA AND FAX
QUICK LINK II SOFTWARE
LIFETIME WARRANTY #1757781

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BATTERY PACK AND CASE
#1750430

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## *Intel Internal Faxmodem 24/96i*

**200 bps Modem 9600 bps Fax**

Make all the right connections. Intel connects you to the broadest range of modems and fax machines. Plus Intel gets you started with $107 worth of free on-line services. Put a new world of information at your fingertips. Pay bills electronically. Get the latest stock market report. All necessary communication and fax software is included as well as industry leading Intel technical support by phone. 24 hour fax and electronic bulletin board services
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intel

**$69.99**

## *Intel External Faxmodem 14.4/14.4e*

**14,400 bps, V.42bis Modem/14,400 bps Fax**

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**$184**

## *Intel Internal Fax/Modem 144/144i*

**14,400 bps, V.42bis Modem/14,400 bps Fax**

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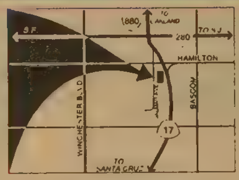
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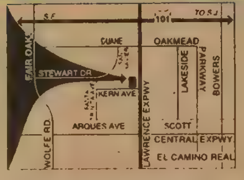
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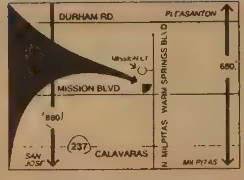
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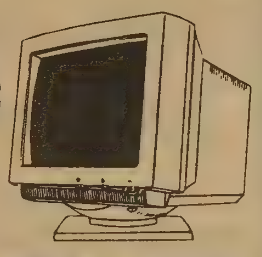
# MONITORS

## NEC

**1024 X 768**
**NON-INTERLACED**
**14" SVGA MULTISYNC**
**MONITOR**

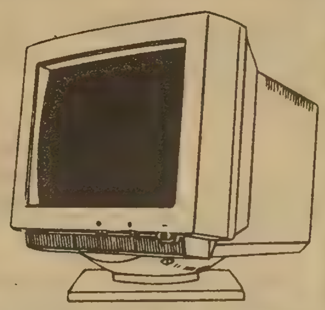


1024 X 768 • Non-Interlaced
Non-Glare • Low ELF & VLF
110/220 Volt

#1813867

**$399**

## NEC 3FGE

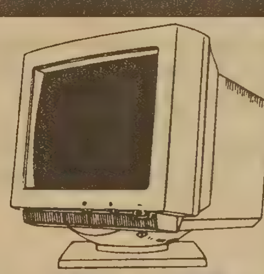


**1024 X 768**
**NON-INTERLACED**
**14" VGA ANALOG**
**FLAT SCREEN**
**MONITOR**

1024 X 768 • Analog
Flat Screen
Non-Interlaced
3FGE #1788091

**$599**

## NEC 4FGE



**1024 X 768 NON-INTERLACED**
**15" SUPER VGA MONITOR**

**$749**

1024 X 768 Non-Interlaced Flat Screen Monitor
4FGE #1641459

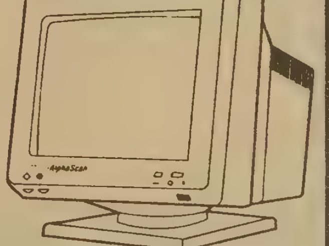
## SONY.

**1024 x 768**
**NON-INTERLACED**
**14" SVGA**
**MONITOR**

1024 X 768 72HZ
Non-Interlaced
Microprocessor
Control
Model 1430
#1756388

**$599**

## SAMPO
AMERICA



**1024 X 768**
**NON-INTERLACED**
**15" SUPER**
**VGA MONITOR**

1024 X 768 • Non-Interlaced
Flat Screen
INVAR Shadow Mask
70HZ Refresh
15" Large Screen
SAMPO KDM-1566
#1691742

**$499**

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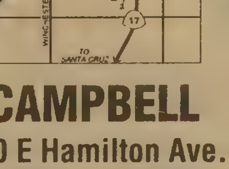
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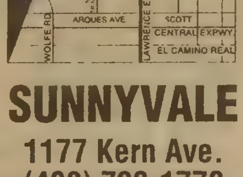
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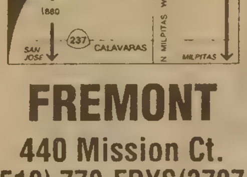
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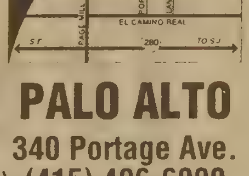
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# MAC HARD DRIVES

## MASS EXTERNAL 210MB HARD DRIVE

210MB EXTERNAL HARD DRIVE FOR MAC
15MS ACCESS
DD210 #1777905

MASS microsystems

**$399.99**

## MASS FLOPTICAL 21 MAC

21MB FLOPTICAL DRIVE FOR MAC 80MS
FP21
#1777983

MASS microsystems

**$379**

## MASS EXTERNAL 120MB HARD DRIVE

120MB EXTERNAL HARD DRIVE FOR MAC
15MS ACCESS
DD120 #1777891

MASS microsystems

**$399**

## MASS EXTERNAL SYQUEST 105 MAC

105MB EXTERNAL SYQUEST FOR MACINTOSH
14.5MS ACCESS W/ SOFTWARE CARTRIDGE
DP105 #1796704

MASS microsystems

**$799**

## 210MB MAC EXTERNAL 2" HARD DRIVE

210MB EXTERNAL FOR MAC
15MS ACCESS
DD120P2 #1777927

MASS microsystems

**$499**

## MASS EXTERNAL SYQUEST 44 MAC

44MB EXTERNAL SYQUEST FOR MACINTOSH
20MS ACCESS W/ SOFTWARE
DD01P #1777938

MASS microsystems

**$479**

## MASS MICRO EXTERNAL 120MB 2"

120MB EXTERNAL FOR MAC
15MS ACCESS • 2 X 4 . 7 X 7.9
Some Macs may require external power supply.
DD120P2 #1777916

MASS microsystems

**$299**

## MASS EXTERNAL SYQUEST 88 MAC

R/R 44 AND 88MB CARTRIDGE
20MSEC ACCESS W/SOFTWARE
DP88C01 #1796748

MASS microsystems

**$549**

## IOMEGA MAC TRANSPORTABLE BERNOULLI 90

- 18-msec effective access time
- Rugged Bernoulli Technology
- The right disk for the right job
- Reads and writes 90MB Bernoulli Disks, reads 44MB Bernoulli Disks

#1765070

IOMEGA®

**$499**

## BERNOULLI MULTIDISK™ 150

- 150MB (300MB with included compression)
- 18-msec effective access time
- Rugged Bernoulli Technology
- The right disk for the right job
- Reads and writes 90MB Bernoulli Disks, reads 44MB Bernoulli Disks

#1765058

Handles like a floppy performs like a hard disk

IOMEGA®

**$599**

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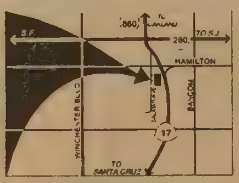

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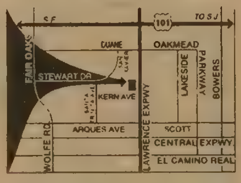

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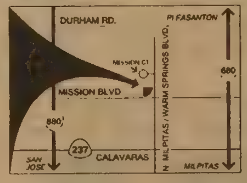

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# HARD DRIVES

## 120MB 3.5" IDE HARD DRIVE

**$139**

19 msec Access • IDE Hard Drive • 3.5" x 1 #1746868

## SAMSUNG 120MB 3.5" IDE HARD DRIVE

**$158**

3.5" Form Factor 1" Ht. • 16ms Average Access Time
SHD3062A #1708695

## SEAGATE 130MB IDE HARD DRIVE

**$179**

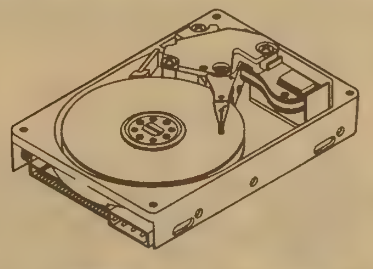
3144A #1660878

## MAXTOR 131MB 3.5" IDE HARD DRIVE

**$169**

3.5" X 1" HT • 15MS Access Time
7131A #1803646

## CONNER 170MB 3.5" IDE HARD DRIVE



**$169**

17ms Average Access • 32K Buffer • 1" HT. • Low Power Consumption
CP30174E #1656815

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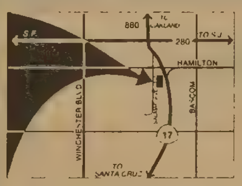

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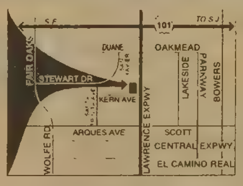

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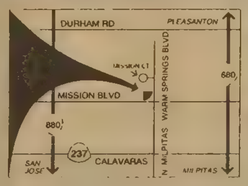

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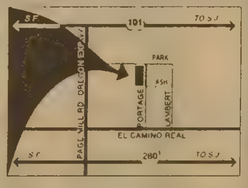

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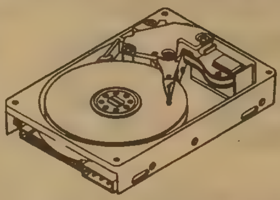
# HARD DRIVES

## Maxtor 213MB IDE HARD DRIVE



**$188**

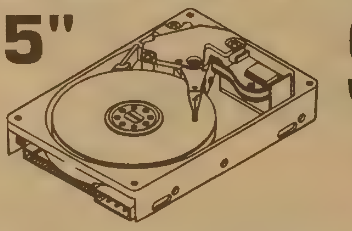
3.5" X 1" HT. • 15MS Access Time
7213A #1694044

## WESTERN DIGITAL 210MB IDE HARD DRIVE

**$199**

13 msec Access • 2 Year Warranty AC1210 #1828522

## SAMSUNG 255MB 3.5" IDE HARD DRIVE



**$199**

3.5" Form Factor 1" Ht. SHD3122A #1786011

## MAXTOR 245MB 3.5" IDE HARD DRIVE

**$215**

3.5" Format • 1" Height • 15ms Access MXT-7245A #1759934

## CONNER 250MB 3.5" IDE HARD DRIVE

**$218**

12ms Average Access • 1" HT. • 3.5" Form Factor CP30254 #1795356

## QUANTUM 240MB IDE HARD DRIVE

**$219**

256K CACHE • FAST ACCESS #1758449

## SEAGATE 260MB IDE HARD DRIVE

**$309**

ST1239A #1836213

## Seagate 452MB IDE HARD DRIVE

**$479**

ST3550A #1836257 (SUNNYVALE STORE ONLY)

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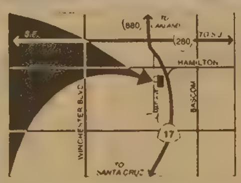
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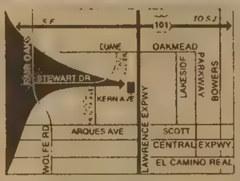
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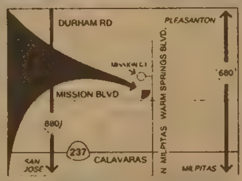
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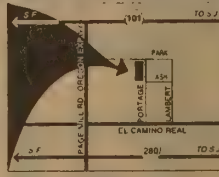
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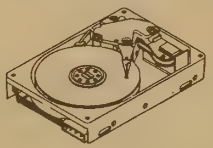
# HARD DRIVES

## *CONNER* 340MB 3.5" IDE HARD DRIVE $269



13msec Access • 1" HT X 3.5" CP30344 #1825736

**MAXTOR 340MB IDE HARD DRIVE** **$279**
1" HT. • 15ms Access Time • 345MB Formatted Capacity • 7345A #1781.762

***WESTERN DIGITAL* 340MB 3.5" IDE HARD DRIVE** **$288**
3.5" Size • 12 msec Average Access • AC2340 #1771644

**SEAGATE 340MB IDE HARD DRIVE** **$329**
ST3390A #1836246

## *CONNER* 510MB 3.5" IDE HARD DRIVE $479

12ms Average Access 1/2 HT. 3.5" Form Factor 256K Buffer CP3504 #1810657

**SEAGATE 528MB IDE HARD DRIVE** **$599**
ST3655A #1836279 (SUNNYVALE STORE ONLY)

## MICROPOLIS 1 GIGABYTE SCSI HARD DRIVE

10msec Access • 5 Year Warranty • 3.5" Formatted Capacity
2112/2210 SCSI
#1787757

**$1089**

**QUANTUM 1 GIGABYTE SCSI HARD DRIVE** **$1029**
PD1050S #1802139

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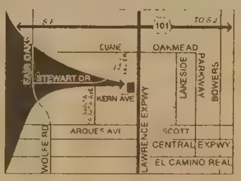
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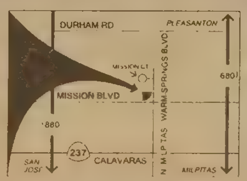
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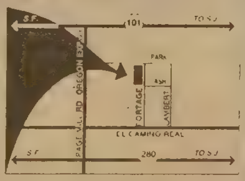
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## POWERTAPE 2400 EXTERNAL 2.4 GIGABYTE BACK-UP SYSTEM

WITH SCSI CONTROLLER
18MB/MIN NOVELL, NETWARE, LANTASTIC
#1804050

**$1199**

## CONNER

## 250MB INTERNAL TAPE BACK-UP

WITH DC12120 TAPE CARTRIDGE • C250MQT #1825747

**$159.95**

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MEMORY SYSTEMS INC.

## 250MB TAPE BACK-UP

40/80/120/250 MB Format
Internal Drive runs off floppy controller
Uses DC-2000 Tapes    Model DJ-20 #1610068

**$188**

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## Jumbo Trakker 120MB Parallel Printer Port Tape Backup System

**Plug and Play.** No hardware installation. Trakker connects to your computer's parallel printer port.
**Full Compatibility.** Works with any computer with an IBM® compatible parallel printer port.
**Dual Connectors on Back Panel.** Trakker and printer share a parallel printer port.
**Trakker Portability.** Easily shuttles between laptops and desktops.
**QIC-40.** Industry Standard Recording Format for data interchange.
JT-10 #1740792

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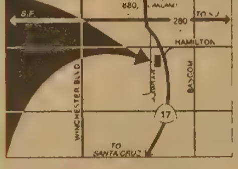
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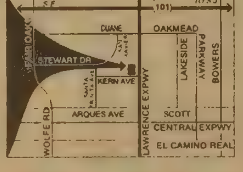
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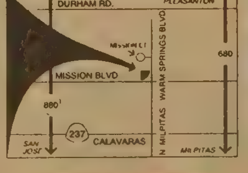
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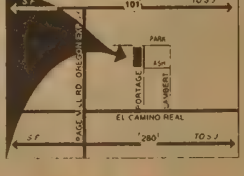
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# CD-ROM

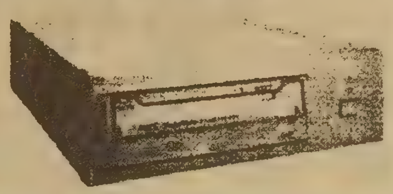
## TEAC
## DUAL-SPEED INTERNAL CD-ROM

256ms Dual Speed
335KB Through-put

**$349**

**CD-50**
#1815087

## MULTI-SPEED MEGA SAVINGS!
## NEC INTERNAL CD-ROM



Dual spin drive optimizes
speed by accessing video
and sound at their different routes.
280ms average access time.
350KB transfer rate.

**$449**

**CDR84-1**
#1785582

## TOSHIBA DUAL SPEED INTERNAL CD-ROM

SCSI CD-ROM • 200ms Access • 256K Cache
330KB/sec Transfer Rate • Multi-Speed

**$384**

**XM3401B**
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## OMNI CD MULTIMEDIA UPGRADE KIT

- 300 KB/sec data transfer rate • Multi-session photo CD compatible
- 320ms access rate • 680MB data capacity
- 64KB RAM buffer • Daisy-chain up to four Creative Labs drives
- CD-ROM XA ready

#1825714

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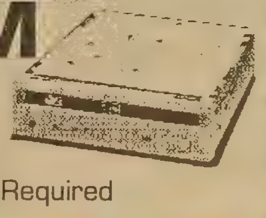
CREATIVE
OMNI CD
PHOTOSTYLER

**$299.95**

## SONY.
## INTERNAL CD-ROM



64KB BUFFER
550ms Access
150KB Transfer Rate
Tray Load • No Caddy Required

**$149**

**CDU-31A02**
#1812925

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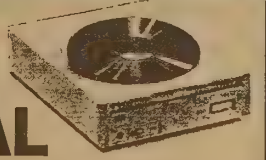

## INTERNAL CD-ROM KIT

Internal CD-ROM
390ms Average AccessTime
Includes Interface, Drivers & Cables

Includes Free Installation Video

**$189**

**CD001**
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REVEAL

## INTERNAL CD-ROM DRIVE

With its high-speed design and precision optics, Reveal's CD110 internal CD-ROM drive gives you full access to today's most advanced multi-media programs. Including ones for education, entertainment, business management and health, with state-of-the art effects such as action video clips, lively 3-D animations, brilliant color photographs and more. And with the CD110's fast 350ms data access time and 150KB data transfer rate, your programs will move along smoothly and quickly. You can also use the drive to play your favorite CDs while you work, or even to view your own photographs, because the CD110 is multi-session Photo-CD ready! Just have your pictures placed on CD by your local Kodak processing center. Includes controller card, cables, how-to video and instruction booklet.

**$249.99**

**CD110**
#1811407

## MICROSOLUTION MOBILE MEDIA
## BACKPAK
## EXTERNAL CD-ROM
### NO INTERFACE REQUIRED

External Portable CD-ROM Connects To Parallel Port
150KB Transfer Rate

**$369**

**BP160550CD**
#1798728

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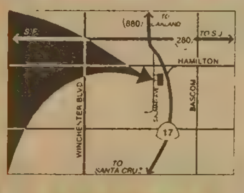
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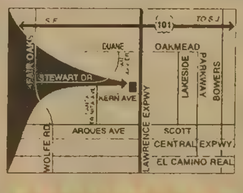
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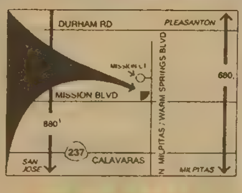
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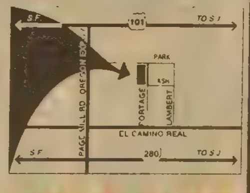
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### MF2-HD 3.5" DS/HD IBM FORMATTED DISKETTES

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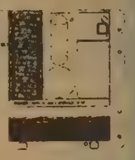

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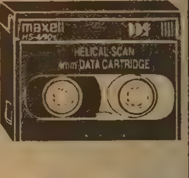
### HS-4/90 2GB 4MM HELICAL-SCAN DATA CARTRIDGE



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### HS-8/112 2.5GB 8MM HELICAL SCAN DATA CARTRIDGE

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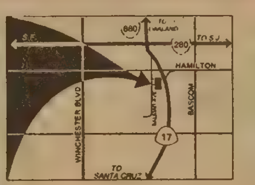
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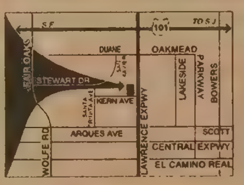
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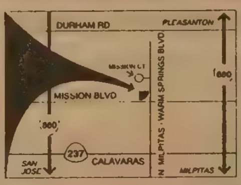
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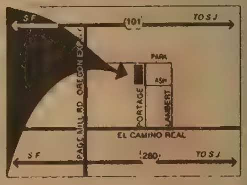
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## MULTIMEDIA FX DISCOVERY PACK

MULTIMEDIA FX
Microsoft

**DOUBLE SPEED CD-ROM DRIVE**
- 540MB disk capacity
- 300KB data transfer rate
- 320ms access time
- Photo CD multi-session ready

**SOUND FX PLUS SOUND CARD**
**SOUND FX CARD SPEAKERS**
**CD TITLES INCLUDED:**
- Multimedia Encyclopedia
- MS Multimedia Pack For Windows 3.1

**MM040** #1811441

**$299.99**

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**CD110**
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**$249.99**

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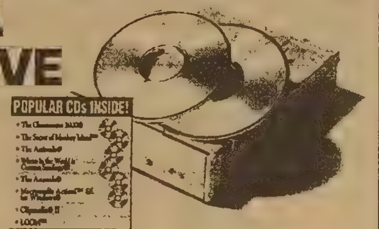
## INTERNAL CD-ROM DRIVE


POPULAR CDs INSIDE!

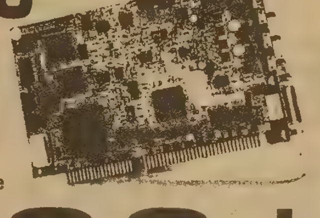
**INTERNAL CD-ROM DRIVE**
- 540MB capacity
- 350ms access time
- 150KB data transfer rate
- Multi-session Photo CD ready.

**CD TITLES INCLUDED:**
- Multimedia Encyclopedia • The Animals
- Mavis Beacon Teaches Typing • World Atlas
- U.S. Atlas • Chessmaster 3000 • Macromedia Action • Clip Media • Where In The World Is Carmen San Diego, LOOM • The Secret Of Monkey Island
- Secret Weapons Of The Luftwaffe software

**CD120** #1811418

**$299.99**

## SOUNDMAN 16



**Ttimate 16-bit sound board for entertainment and multimedia!**

SoundMan 16 has no jumpers, so you can install it without having to set on-board options first. The installation software automatically selects the right settings for your system. And SoundMan 16 is guaranteed 100% Sound Blaster and AdLib hardware compatible.
#1842935

*After $10
Mail-In Rebate.
In-store Cost $119.

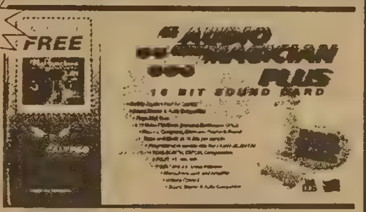
LOGITECH

**$109 ***

*CALYPSO*

## AUDIO MAGICIAN PLUS 16-BIT SOUND CARD

***16 BITS FOR THE PRICE OF AN 8 BIT!***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AUDIO MAGICIAN PLUS
16 BIT SOUND CARD

***SOUND BLASTER & AD-LIB COMPATIBLE***

Microphone Jack • Game Port
Audio Recorder • Audio Reminder,
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Talking Calculator,
Audio Clip Library,
Timer & Stopwatch
#1811784

**$74.99**

### *META MULTIMEDIA WONDER CARD!*

*CALYPSO*

## PC VISION TTX

PC Vision TTX
Turn your PC into the Multimedia Computer of the 90's

- Super VGA • Video Capture 16-Bit Sound
- Television & Teletext on One Card

Access USA Today and complete Stock Market encoded within Action 36 TV signal. Works with cable, broadcast or satellite input.
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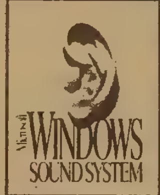
***NO FEATURE CONNECTOR REQUIRED***

**$499.99**

## Microsoft Windows Sound System


Microsoft
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SOUND SYSTEM

Make a sound investment to increase your productivity! You can hear spreadsheet numbers read back to you annotate documents with sounds and voice messages, even execute commands simply by speaking to your computer. Designed for business, this audio software and hardware package for the Windows Operating system version 3.12 will help you work faster and smarter!
Includes: 16 Bit Audio Card
Dual Media Software
Microphone • Headphones
#1742624

**$219**

## SOUNDWAVE 32
### Advanced Wavetable/DSP 16-Bit Sound Card

• 24simultaneous voices • Conforms to Roland MT-32 voice spec • MPU-401 and General MIDI - For use in music/recording applications • Build-in CD-ROM interfaces (Sony and Mitsumi) supports double speed and multi-session drives • Bundled software worth over $400.
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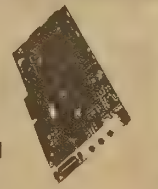
**$229.99**

*COMPUTER PERIPHERALS, INC.*

## Maestro 16 VR Sound Card



**With Voice Recognition & Wave Table Sound**

16 Bit Wave Table Sound • SCSI I and II Interface
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Digital Signal Processing • MIDI/Game Port
32 Voice Synthesizer • 44KHz Record/Playback
Voice-Controlled Commands • 5 Year Limited Warranty
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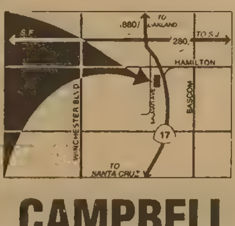
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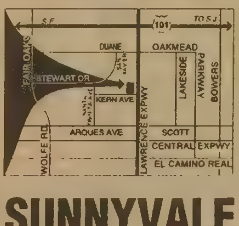
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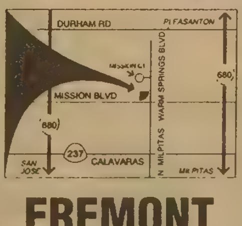
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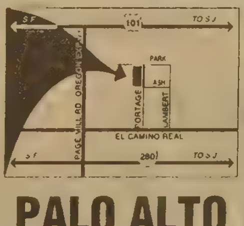
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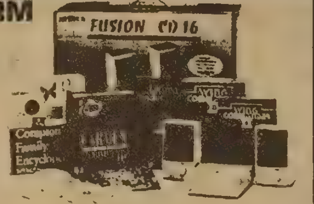
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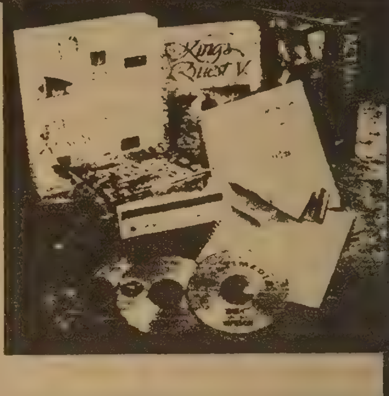
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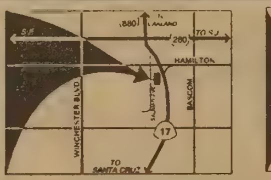
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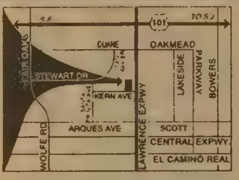
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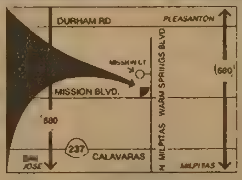
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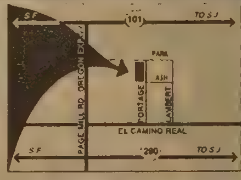
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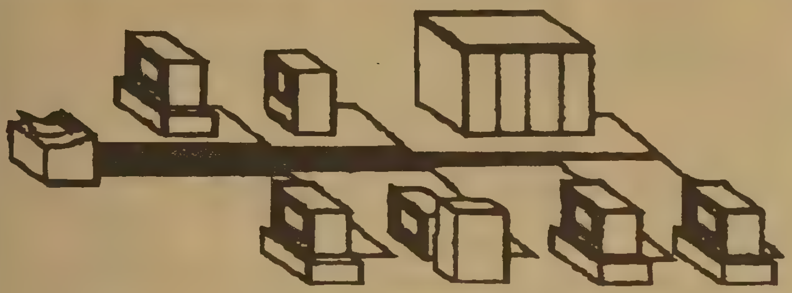

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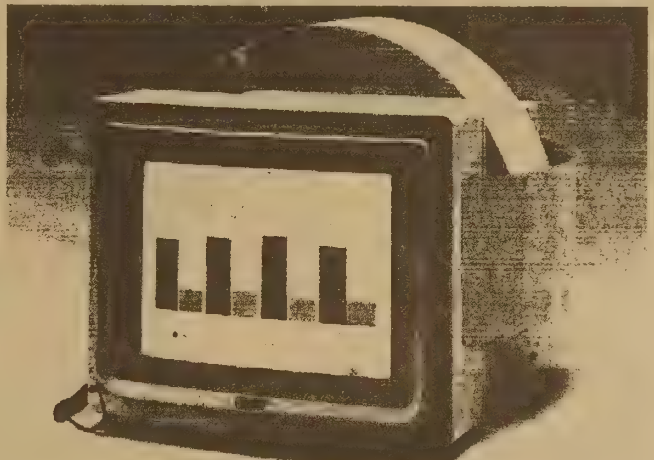

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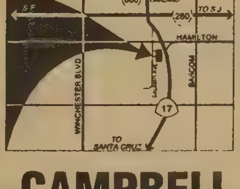
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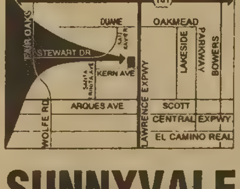
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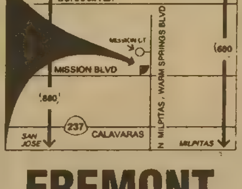
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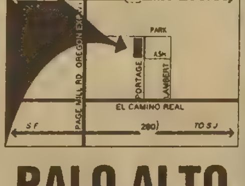
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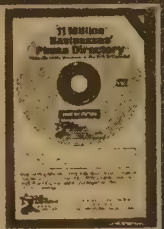
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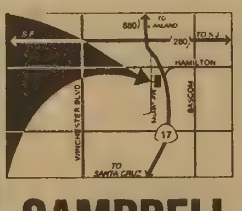
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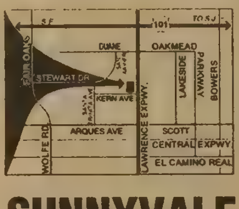
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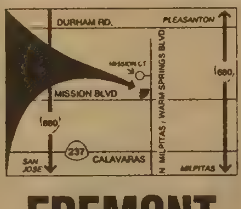
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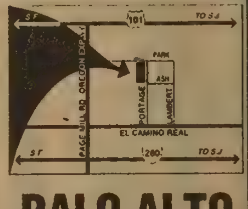
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| **Que's Computer Buyers Guide** 1993 Edition #1719529 | $14⁹⁵ |
| **Random House PC Dictionary** #11650428 | $8⁵⁹ |
| **Microsoft Office 6 in 1** #1809181 | $21⁹⁵ |

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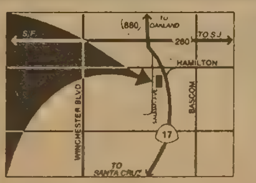

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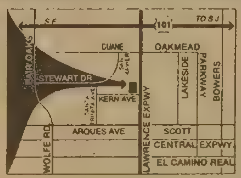

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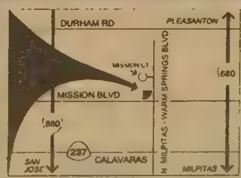

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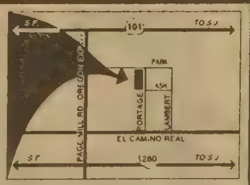

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**ELIMINATES MANY REPETITIVE MOTIONS**
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**FEATURING ALPS KEY SWITCHES**
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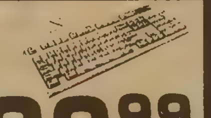

- IBM PS/1, PS/2, 286 AT And Compatibles
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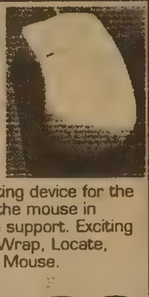
## Microsoft Mouse



Breakthrough ergonomic research and innovative features make the Microsoft Mouse the ultimate pointing device for the Windows operating system. Hold the mouse in either hand with equal comfort and support. Exciting features include: Snap-To, Screen Wrap, Locate, Magnify, Orientation and Meet The Mouse. In O.E.M. Packaging.

**$59.99**

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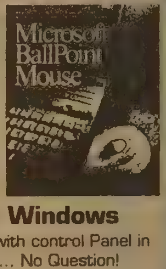
*NO SURFACE REQUIRED*

## Microsoft Ballpoint Mouse



**w/Trival Pursuit For Windows**

400 DPI • Set Mouse Variables with control Panel in Windows or DOS. Compatibility?... No Question!
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**PROGRAMMABLE 3 BUTTON MOUSE**

Ergonomic Design • 400 DPI
Total Microsoft Compatibility
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## firstMOUSE

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First Mouse is an excellent 3-button mouse value. It's easy to install and use, with a comfortable sleek shape and large tactile buttons. True ergonomics combines a comfortable shape and software that reduces repetitive double clicking to a single click of a mouse button. First Mouse is built with uncompromising quality for a long life
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## TRACKBALL

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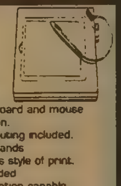
MOUSE SYSTEMS

## PenMate



- Serial device. Works with keyboard and mouse
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- Programmable Gesture commands
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- Full keyboard and mouse emulation capable.

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## 3-BUTTON BLACK MOUSE

Microsoft & Mouse Systems Compatible
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## SERIAL BUS CARD

MOUSE SYSTEMS

A mouse interface and serial port for crowded hardware environments. The Serial Bus Card allows you to turn that empty slot on the back of your computer into a useful serial port.
MS Windows 3 x Compatible • Supports with any device that requires a serial connection. Full Communications Card with higher IRQ's supported • 36 possible jumper settings Hardware IRQ's 2, 3, 4, 5, 7, 10, 11, 12, 15 • Port Addresses 238, 338, 2F8, 3F8
SOFTWARE FEATURES:
20 CPI Resolution, variable mid-range resolution and fast, high performance 6,400 CPI to save time and minimize workspace Selectable MS or Mouse Systems Ultra Res™ ballistic acceleration Buttons reassignable for right or left-handed use #1752155

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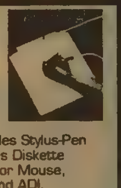
## ACECAT PC



**GRAPHICS TABLET & MOUSE EMULATOR**

1000 Lines Per Inch
5" X 5" Active Area. Includes Stylus-Pen and Comprehensive Utilities Diskette Including Custom Drivers for Mouse, Windows, Control Panel and ADI.
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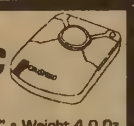

Size 2.8" x 2.0" x1.25" • Weight 4.0 Oz
50 - 9600 DPI • Microsoft Compatible
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Drag-Lock Button
#1621903

**$58.88**

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INTERLINK ELECTRONICS

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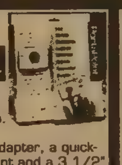

Gently touch the unique sensor button to control both speed and direction. PortaPoint comes complete with a PS/2 adapter, a quick-release Velcro attachment and a 3 1/2" DOS driver diskette. (5 1/4" available).
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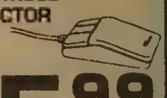
## THREE BUTTON 400 DPI SERIAL MOUSE

**M.S. COMPATIBLE**
**DB9 CONNECTOR**



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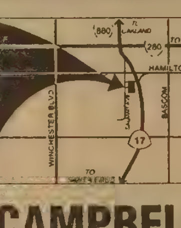

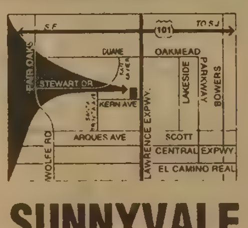

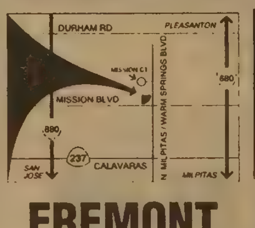

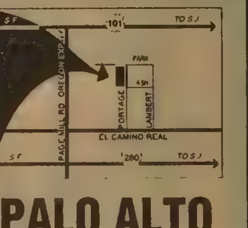

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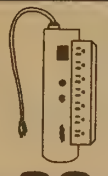

7 Outlet and 240 Joules Dissipation
Site fault wiring indicator

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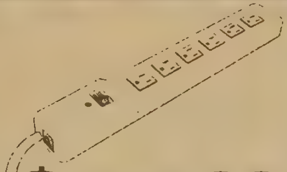

Suppresses Surges up to 120 Joules
15 AMP Circuit Breaker
Platinum Color Six outlets
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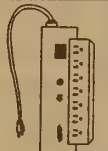

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EMI/RFI Filtering (Helps Reduce Random Lock-Ups & Parity Errors)
Site fault wiring indicator
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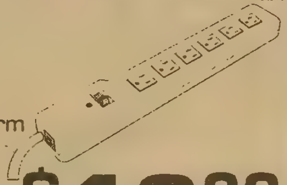
## POWERTREE 20

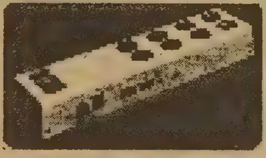


Surge Suppression Indication: LED and Buzzer Alarm
Clamping Voltage: 340 V
Current Peak: 4500 Amps;
Energy Dissipation: 120 Joules
Typical Response, Time: <1 nanosecond
Warranty: 1 Year #1423589

**$16.99**

## *Intelestrip800*™

**The Power Strip with Intelligent Control**



Ideal for remote laptop computer users
- now you can turn on your home/office computer from anywhere in the world!
- Activate power by telephone, manual switch, TTL or RS-232 signal
- Built-in Timer with user controlled off delay of 18 seconds to 3 days.

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Outlet spacing not to scale

- 6 Outlet Surge Protector - 420 Joules Dissipation
- Outlet spaced to accomodate even large conventer type plugs
- Modem & Fax Protection
- Noise Filter - Audible alarm for unit failure

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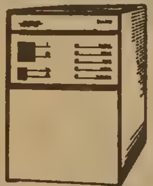
*DETER DATA DISASTER*

## BACK UPS 250



Modified Sine wave output safer for all equipment types than square wave
250 Volt/AMP Backup Power Supply
2 Outlet • EMI/RFI filtering
10 Minutes Back-Up at 250VA
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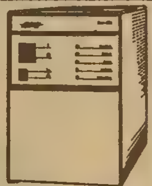
## BACK UPS 600



600 VA Backup Power Supply
Self test switch
Alarm test switch
Built in surge protector
Power Supply • 4 Outlet
EMI/RFI filtering
10 Minutes Back-Up At 600VA
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**$339**

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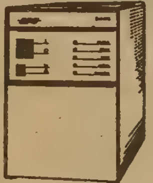
## BACK UPS 400



400 VA Backup Power Supply
Built in Surge Protection
EMI/RFI Noise Filtering
10 Minutes of Power at 400VA usage
DB9 Interface Port
#1651175

**$209**

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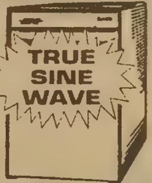
## SMART UPS 600

**Line interactive design**

NOVELL APPROVED

TRUE SINE WAVE



Better than standby or online units.
Power output filtered through UPS Inverter
Boosts power during brownouts
Site and unit diagnostics
Network grade line conditioning
Battery replacement warning
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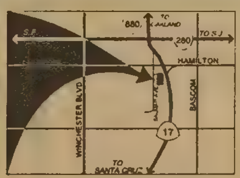

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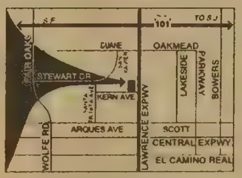

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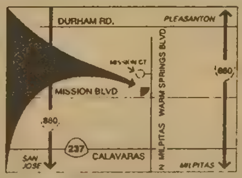

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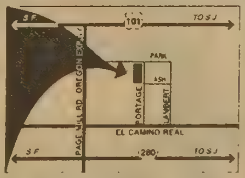

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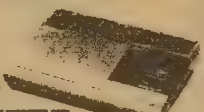
### ANSWERING MACHINE

Answering system with Auto-Logic Operation, Tone Remote Control, Digital Display, Message Memo Recording and Remote turn on, Auto-Logic Operation Automatically Rewinds, Plays Messages, Stops at the Last Message and Resets itself at the Touch of One Button.

**$39.95**

Model
KX-T1000
#1498194

**Panasonic**



### DUAL MICRO CASSETTE ANSWERING SYSTEM

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

**$69.95**

MODEL
KX-T2100
#1740208

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### DUAL MICRO CASSETTE ANSWERING SYSTEM W/ VOICE TIME/DAY STAMP

Panasonic's new dual micro cassette answering system offers an LCD Call Counter, marker message, room monitor, auto disconnect, electronic auto disconnect, electronic volume control, audible message alert, and much more for only...

**$89.95**

MODEL
KX-T2300
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## SPEAKER PHONES

**Panasonic**

### SPEAKERPHONE

For the office or home, this phone has all the features you need. It has a speaker phone, 28 station automatic dialer, automatic redial and much more.

**$39.95**

MODEL
KX-T2315
#1530100

**Panasonic**

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This outstanding value from Panasonic offers one-touch dialing for up to 28 16-digit telephone numbers, auto redial for up to 15 times, redial memory transfer, and a save button for temporary redial memory storage for only...

**$49.95**

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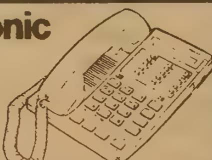

### LCD READOUT SPEAKERPHONE

This outstanding value from Panasonic offers a 12-digit LCD readout for phone number, clock, call timer(minutes & seconds), and operating modes. Perfect for the home or office at only...

**$69.95**

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## MULTI-LINE BUSINESS PHONES

**Panasonic**

### TWO LINE PHONE

A two line phone doesn't have to cost a fortune. Panasonic has the low cost answer for you. This unit has a convenient auto dialer, conference calling and much more!

**$49.95**

MODEL
KX-T3110
#1505313

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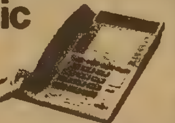


### 2-LINE SPEAKERPHONE W/ LCD DISPLAY

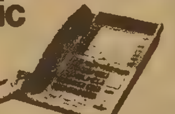
From Panasonic comes this fully featured 2-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 24-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

**$89.95**

AVAILABLE IN BLACK OR WHITE

MODEL
KX-T3175
#1745122

**Panasonic**



### 3-LINE SPEAKERPHONE WITH LCD DISPLAY

From Panasonic comes this fully featured 3-line speakerphone with LCD display, 3-way conference call, volume control for speaker and handset, 48-station one-touch dialer, auto redial, flash, separate ringer tone, line status indicator, memo dial, and save redial, all for only...

**$159.95**

AVAILABLE IN BLACK OR WHITE

MODEL
KX-T3185
#1768039

## CORDLESS PHONES

**Panasonic**

### 10 CHANNEL CORDLESS PHONE

Most cordless phones have a very short battery life, but this one can last up to 7 days in the standby mode! Add a flexible antenna, 10 number memory, 10 channels, paging and you have an excellent value at...

**$69.95**

MODEL
KX-T 3710
#1511309

**Panasonic**

### 10 CHANNEL CORDLESS SPEAKERPHONE w/ANSWERING MACHINE

This new top of the line cordless answering system with sound charger technology delivers sound so clear, you will hardly believe your ears! Some of the features included are, 2 way paging, intercom, auto security system, message alert, 2-way and memo recording just to name a few. Now only...

**$159.95**

MODEL
KX-T4330
#1796483

**Panasonic**

### 10 CHANNEL CORDLESS SPEAKERPHONE WITH DUAL MICROCASSETTE

This new top of the line cordless dual microcassete answering system with sound charger technology delivers sound so clear, you will hardly believe your ears! Some of the features included are, 2 way paging, intercom, auto security system, message alert, 2-way and memo recording just to name a few. Now only...

**$199.95**

AVAILABLE IN BLACK OR WHITE

MODEL
KX-T4400
#1735370

## FAX MACHINES

**Panasonic**

### FAX MACHINE WITH ANSWERING MACHINE AND ANTI-CURL

This fully featured Fax from Panasonic comes equipped with an auto-logic answering system and anti-curl, as well as copier capabilities. It's the perfect secretary for your home or business!

MODEL
KX-F150
#1770001

**$399**

**Panasonic**

### FAX MACHINE WITH PAPER CUTTER AND ANTI-CURL

This fully featured Fax from Panasonic comes equipped with an auto-logic answering system and auto paper cutter, as well as copier capabilities. It's the perfect secretary for your home or business!

MODEL
KX-F250
#1770023

**$469**

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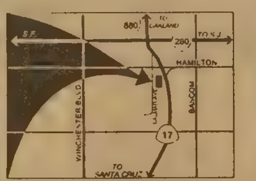
VISA AND MASTERCARD ACCEPTED

CORPORATE P.O. FAX #'s



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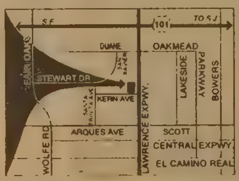

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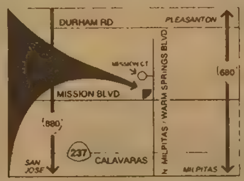
(408) 735-6800



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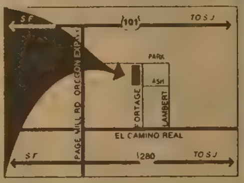
(510) 770-3700



**PALO ALTO**
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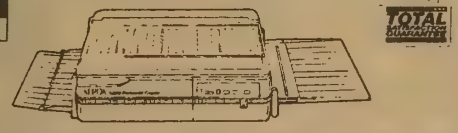
# YOU CAN'T DUPLICATE XEROX QUALITY

## XEROX
## PERSONAL COPIER

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE



Don't settle for a copy when you can have the original... Xerox. Xerox is so confident in the quality and reliability of its copiers that it offers an exclusive 3 year warranty on all its copiers. This model offers a paper tray that stacks 40 sheets, a built-in carrying handle and removable storable paper trays, multi-copy capability which can be set from 1 to 9 copies or "C" for continuous up to 20 copies, and automatic exposure which scans documents for degrees of lightness or darkness to determining the appropriate exposure setting. An invaluable addition to any home office. At only....

Model 5220
#1706095

DRY INK CARTRIDGE
NOT INCLUDED

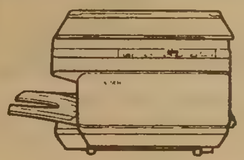
**$497**

## XEROX
## COPIER
### w/REDUCTION & ENLARGEMENT

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE



If you're looking for versatility and premium performance in a copier your search is over! Xerox has designed a copier that incorporates reduction/enlargement technology enabling you to reduce a copy 75% and 95%, and enlarge to 124%, a 250 sheet paper tray which adjusts to hold memo to letter to legal size paper, built-in automatic exposure which scans documents for degrees of lightness or darkness to determine the appropriate exposure setting, multi-copy capability of 1 to 50 copies, letter and legal size copying, and manual bypass, all backed by the experts at team Xerox. Now just...

Model 5009
#1706109

DRY INK CARTRIDGE
NOT INCLUDED

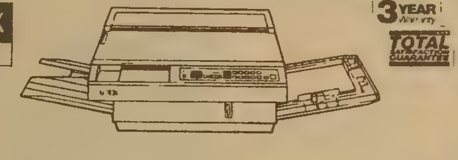
**$797**

## XEROX
## SMALL BUSINESS COPIER
### w/REDUCTION & ENLARGEMENT

XEROX Authorized Retailer

3 YEAR Warranty

TOTAL SATISFACTION GUARANTEE



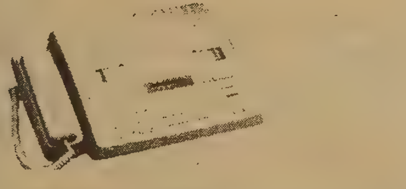
Xerox engineers have developed an affordable copier for businesses with high volume demands. The included copy cartridge is designed to deliver 18,000 copies and is guaranteed to deliver 16,000 before needing replacement. Other features include a 250 sheet paper tray, automatic exposure, photo mode to make clear copies of photographs, a graphic display which indicates the location of jammed paper, that the paper tray is empty, and that the copy cartridge is nearing the end of its life, a multi-copy button that can be set from 1 to 99 copies, dual electonic meters which displays the number of copies made by the cartridge in use and the total number of copies made by the copier, an output tray that collects up to 110 finished copies, and much more. An excellent investment at...

Model 5011
#1706121

**$1597**

# BROTHER HAS THE FAX!

## brother
We're at your side.
## FAX MACHINE
### W/PAPER CUTTER

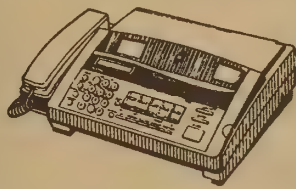


Brother's breakthrough fax machine incorporates newly developed therma plus technology which uses fax paper that feels like plain paper and reduces print fading (lasts 3 times longer than thermal paper under normal filing conditions, and you can even use a highlighter!). Other features include, 15 page document feeder, 60 station memory, 16 level grey scale, activity report, polling and much more for only...

MODEL FAX-600
#1705603

**$339**

## brother
We're at your side.
## FACSIMILE MESSAGE CENTRE
### W/AUTO PAPER CUTTER

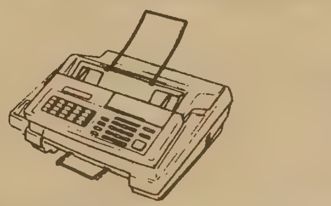


The Facsmile Message Center was designed so that the internal memory can be used for out of paper reception (up to 50 pages), as an all digital answering machine (up to 12 minutes), or you can share the memory on a first come first serve basis! Other features include 15 page auto document feeder, 32 level grayscale, 16 digit LCD display, sequential broadcasting, multi-copying with sorting, 60 station memory, Fax/Tel switch, multiple resolution transmission, and much more for only...

MODEL FAX-780
#1796944

**$499**

## brother
We're at your side.
## PLAIN PAPER FAX
### W/256K MEMORY



Brother's done it again! Last year Brother broke the $400 price barrier in paper cutter Fax, and for an encore, Brother has destroyed the $799 stand alone plain paper Fax barrier with this unbelieveable value. Its 200 sheet paper cassette, 30 page auto document feeder, on-screen programming, "smoothing" enhanced image resolution, 48 digit LCD display, multiple resolution transmission, 32 level grayscale, 160 station memory, and Fax/Tel Switch makes this the best value you will find at only.....

MODEL FAX-980
#1801828

**$699**

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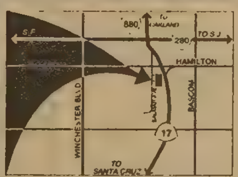

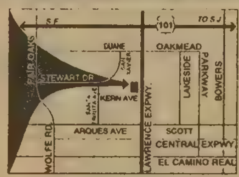

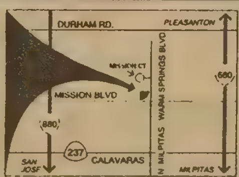

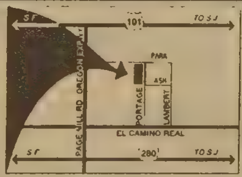

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Digital network includes switching and network transmission only. Available to retail customers only and on approved credit basis. A one year service activation on a currently published GTE Mobinet rate plan is required. Offer applies to first two months of initial one year contract period only. Unused minutes will not be credited and are non-transferable. Offer valid from September 22 to November 24, 1993. GET MOBILIZED is a service mark of GTE Mobile Communications. Contents may not be reproduced without written permission by GTE Mobilnet. All rates and information subject to change without notice. Other restrictions apply. © 1993 GTE Mobilnet.

**MOTOROLA**

## CELLULAR TRAVELER PHONE

This new addition to the Motorola family of cellular phones offer 30 number memory and 3 full watts of power for only...

NO ACTIVATION FEE

$159 95
- 25

**$134 95***

Model S-3230 #1751866

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

**MOTOROLA**

## TRANSPORTABLE HANDHELD CELLULAR TELEPHONE

Motorola's most popular Hand Held Phone has all the right features! This compact unit will allow you to talk for up to 90 minutes, keep 30 numbers in memory, and much more!

NO ACTIVATION FEE

$189 95
- 25

**$164 95***

Model 8000-HX #1502549

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

**MOTOROLA**

## CELLULAR FLIP PHONE

This premium value cellular phone from Motorola comes equipped with 30 number memory, LED display, call timer, signal strength meter, a battery with 75 minute total talk time, an overnight charger and a carrying case for only....

NO ACTIVATION FEE

$289 95
- 25

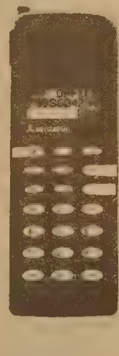
**$264 95***

Model DPC-550 #1635999

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

**MITSUBISHI**
TECHNICALLY, ANYTHING IS POSSIBLE.

## HANDHELD CELLULAR TELEPHONE



This lightweight handheld Mitsubishi cellular phone comes equipped with alphanumeric display,100 Number Memory and much more for the hot low price of...

NO ACTIVATION FEE

$324 92
- 25

**$299 95***

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

Model 3000 SPK #1541609

**MOTOROLA**

## ALPHA MICRO-TAC CELLULAR PHONE

If it's small and lightweight that your looking for, this is the cellular phone for you! With its 101 alpha numeric memory, a desktop charger, and standard battery. This technologicaly advanced cellular phone can be yours only...

NO ACTIVATION FEE

$319 95
- 25

**$294 95***

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

Model DPC-950 BASE #1744545

**MOTOROLA**

## MICRO TAC LITE CELLULAR PHONE

Weighing in at 7.7 ounces and measuring 11.6 cubic inches, this is one of the lightest and most advanced cellular telephones available. With 100 alpha numeric memory, are tractable antenna, standard battery, and desktop charger, you can receive state of the art performance and design for only...

NO ACTIVATION FEE

$489 95
- 25

**$464 95***

*WITH $25 INSTANT REBATE (SERVICE ACTIVATION REQUIRED)

Model MICROTAC LITE BASE #1750739

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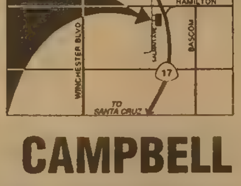
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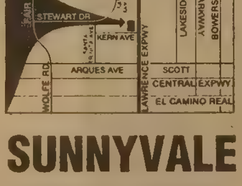
TO OAKLAND
280
TO S.J.
HAMILTON
WINCHESTER BLVD
BASCOM
17
TO SANTA CRUZ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OAKMEAD
STEWART DR
KERN AVE
FAIR OAKS
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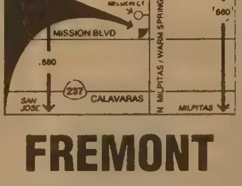
PARKWAY
BOWERS
ARQUES AVE
SCOTT
CENTRAL EXPWY
LAWRENCE EXPWY
EL CAMINO REAL
WOLFE RD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PLEASANTON
MISSION CT
MISSION BLVD
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880
SAN JOSE
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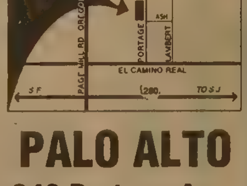
CALAVARAS
N MILPITAS / WARM SPRINGS BLVD
MILPITAS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TO S.J.
PAGE MILL RD
OREGON EXPWY
PARK
ASH
PORTAGE
LAMBERT
EL CAMINO REAL
S.F.
280
TO S.J.

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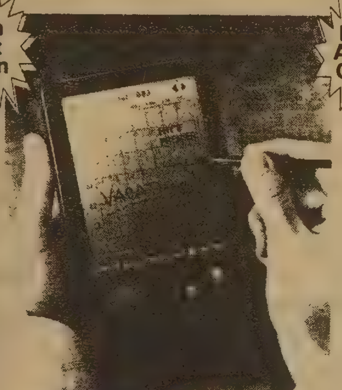
## CASIO

### PERSONAL DIGITAL ASSISTANT

**DOS COMPATIBLE W/GEOS OPERATING SYSTEM**

**Built-in Pocket Quicken**

**Built-in America On Line**



Now an amazing device, no bigger than a small paperback book, can store your hand written notes and sketches, arrange your calendar, keep track of hundreds of phone numbers and addresses, help organize your personal finances, perform complex mathematical calculations, give you easy access to electronic mail and a host of sophisticated on-line information services. With up to 100 hours of operation from 3AA Alkaline batteries, and S RAM or Flash card compatibility, the versatility and performance of this PDA is unmatched at only...

MODEL Z-7000
#1815308

**$669**

## SHARP Newton™

### EXPERT PAD

**PERSONAL DIGITAL ASSISTANT**

**The only Newton with a Protective Screen Cover built-in**

Introducing Sharp's Expert Pad, a personal digital assistant. The Expert Pad combines Newton Intelligence™ and Sharp's touch-sensitive LCD technology to bring you a new type of personal information tool that learns to recognize your handwriting (either cursive or print) and remembers your writing habits. The Expert Pad offers a more natural way to input information (works similar to a paper and pencil). It provides advanced, integrated organization of your information and communications capabilities.

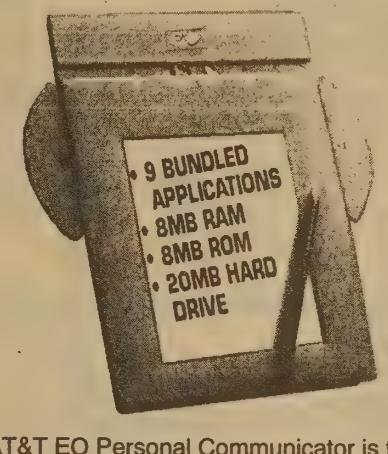
MODEL PI-7000
#1826298

**$679**

## AT&T EO

### PERSONAL COMMUNICATOR

**"The First Truly Handheld Mobile Office"**



- 9 BUNDLED APPLICATIONS
- 8MB RAM
- 8MB ROM
- 20MB HARD DRIVE

The AT&T EO Personal Communicator is the most revolutionary advancement in Communication Technology to appear in years. By combining Faxing capability (by either Phone Line using the built-in modem, or wireless using an optional cellular module), E-Mail, Data Access, and Pen-Based computing in a single 2.2 LB Handheld Unit, the AT&T EO Personal communicator is what you need today to stay ahead in business. A COMPLETE mobile solution. A solution that keeps you in touch anytime and anywhere!

MODEL 440
#1812796

**$2399**

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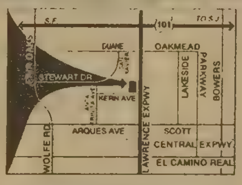
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OAKMEAD
STEWART DR
KERN AVE
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PARKWAY
BOWERS
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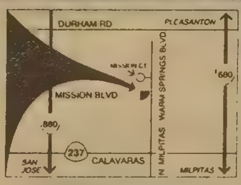
CENTRAL EXPWY
EL CAMINO REAL
WOLFE RD
LAWRENCE EXPWY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PLEASANTON
MISSION CT
MISSION BLVD
WARM SPRINGS BLVD
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N MILPITAS
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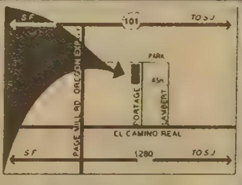
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TO S J
PARK
ASH
PORTAGE
LAMBERT
PAGE MILL RD
EL CAMINO REAL
280

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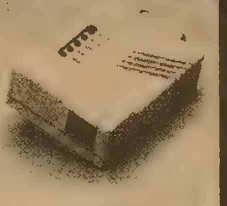
## TWISTED PAIR TRANSCEIVER



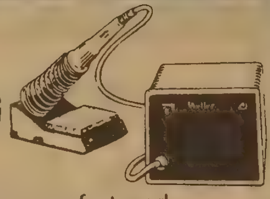
- Compatibility: IEEE 802.3 10BaseT Ethernet II
- FCC Class A
- Selectable SQE and Test Link Functions
- LED Indicators: Polarity, Transmit, Receive/LInk, Jabber, Collision
- Data Rate: 10 MBPS
- AUI Interface: 15 Pin Male Connector
- Network Interface: RJ45 Modular Connector
- Power Dissipation: < 600m W
- Dimensions: 71 x 54 x 24 mm
- One Year Warranty

GE MT

**$69.99**

TR-0011
#1803602

## Weller
## SOLDERING STATION



Compact, remote operator comfort and convenience. Self feeding water reservoir. Exclusive closed loop transformer. Pencil stand connects to right or left station.

**$89.95**

CG-WTCPT
#1723113

## HI-TECH CLEANER AND PROTECTOR

HI-TECH CLEANER AND PROTECTOR
STATX

**$2.99**

Reg. Price $3.49

81238
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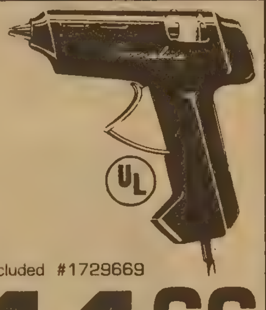
## Swingline
## 33007 TRIGGER FEED GLUEGUN



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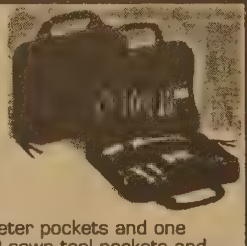

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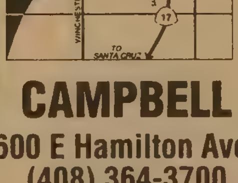
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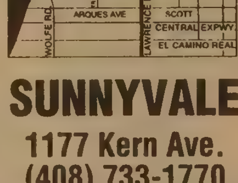
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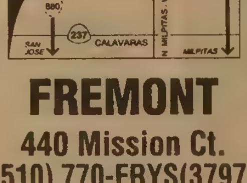
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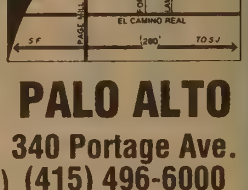
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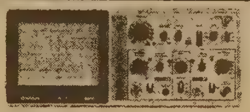

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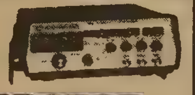

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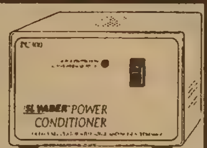

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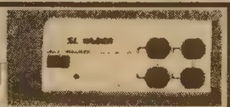

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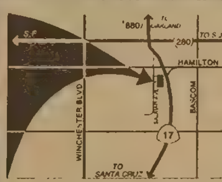

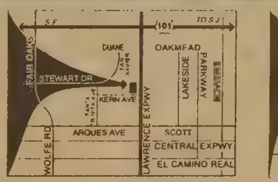

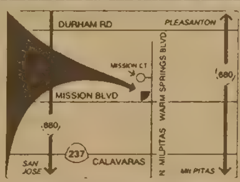

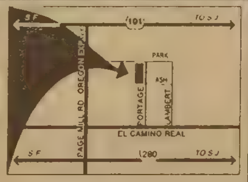

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Ever since my first Apple II computer, I have always sought to have the fastest system around. Not very long ago I was happy working with a 25MHz 386 system—that is, when it was then the current state-of-the-art and the 486 was still just a rumor.

Nowadays, looking around at all of the 486 chips, that same microcomputer is simply too sluggish, especially for Windows. Speed is the issue. Working under Windows, I become even more of a speed demon and memory miser. I want the fastest machine with the most memory that I can get my hands on. But I have accumulated an assortment of add-on and peripheral equipment that I still want. You know, hard and floppy drives, monitor and VGA cards, case, and power supply.

I've never hesitated in pulling cards, swapping boards, and otherwise poking around inside my microcomputer. So why buy a whole new system? Why not just pick up a new motherboard and swap it out? It only is a small problem of unscrewing screws, pulling jumpers, pulling boards, changing the motherboard, and then putting everything back into place. I have had a lot of practice over the years and can swap motherboards in about fifteen minutes or less.

Before jumping into my testing and experiences, I must apologize to the two motherboard manufacturers I am going to recommend. I should have completed this article many months ago. In my testing, I ran into a problem with Windows, which I was almost certain was a problem with these motherboards. But, I recently discovered the troubles were elsewhere and the boards were excellent all along. Here is the article, with my recommendations.

### HOW I MEASURED SPEED

As an end-user, not an engineer, speed is experienced from a perceptual viewpoint, not as a direct measurement. I judge speed by how fast my computer feels to me, how long it takes to boot up, and how fast Windows takes to update a screen. My favorite test is to see how fast Windows updates a new line from CompuServe or The WELL.

### DISPLAY DRIVERS AND VGA CARDS

At the high end of speed, under Windows, the video card and display drivers are as important as the motherboard itself. At 33MHz, for instance, the 1024 x 768, 256-color Windows driver has significantly slower screen rewrites than an 800 x 600, 256-color display driver. This is true with both 33MHz and 50MHz motherboards. From my perceptual viewpoint, video or Windows accelerator cards made a bigger difference than whether the motherboard was 33MHz or 50MHz. However, without an accelerator card, the differences between motherboards was more apparent. In other words, if you are running Windows, and want the higher resolution and 256-color displays (in addition to the high-speed motherboards), you *must* also get a Windows accelerator VGA card. My current favorites are the Number Nine 9GXE, the Hercules Graphite, and the Video & WinPro cards. These three cards, running at 1024 x 768 with 256 colors give me practically instantaneous online screen rewrites.

Since my goal was to test the motherboards, not video card speeds, I also used CheckIt. This is a program that searches your system and tells you what you have and if there are any conflicts between the various cards and peripherals. CheckIt uses Whetstones and Dhrystones to measure CPU speed and math processing speed. These comparisons make more sense to me than other tests, such as Norton's SI, which presents an opinion of overall performance compared to other systems. And as you may have read elsewhere, it was recently discovered that some video board manufacturers have been designing code into their boards that yields an inflated value to the popular integrated speed tests rather than conducting the test.

This table shows the motherboards I tested and the results, followed by a discussion of the two I liked best and why.

| Brand | Chip | Speed | Dhrystone | Faster Than XT | Whetstone | Faster Than XT |
|---|---|---|---|---|---|---|
| Samsung | 386 | 25 | 5139 | 318.7 | 48.29 | — |
| Unknown OPTI | 386 | 40 | 11,236 | 32.66 | 213.2 | 32.3 |
| Hauppague | 386 | 33 | 8723 | 25.36 | 160 | 24.25 |
| Samsung | 386 | 33 | 9208 | 26.77 | 170 | 25.76 |
| Samsung | 486 | 25 | 12,054 | 35.04 | 4099.6 | 21.16 |
| DEICO | 486 | 33 | 16,170 | 47 | 5703.7 | 864.19 |
| QuickPath | 486 | 33 | 15,785 | 45.89 | 5690.1 | 862.14 |
| BioStar | 486 | 50 | 23,164 | 67.34 | 8348.5 | 1264.93 |

The Dhrystone is a benchmark for measuring the basic processing speed of the computer. This test executes a mix of branching, arithmetic, and function call instructions.

A Whetstone is a benchmark for measuring how fast a computer can calculate floating point numbers. Floating point numbers are important in spreadsheet and some graphic applications. One reason for the massive increased speeds on the 486 chips is because this chip has a math coprocessor built in specifically for processing floating point numbers.

Overall, as the speed of the chip

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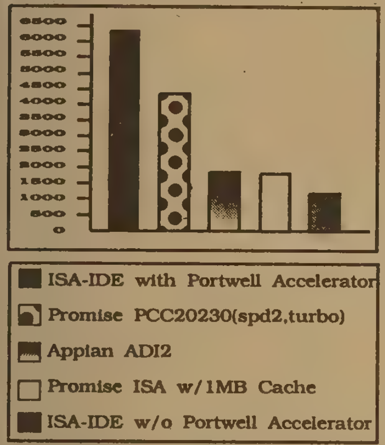

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| FUTURE DOMAIN SCSI 16-BIT | 65 |
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| ULTRASTOR 34F VLB | 279 |
| PORTWELL XL-221 ISA SCSI W/CD-ROM, MO DRIVERS | 78 |
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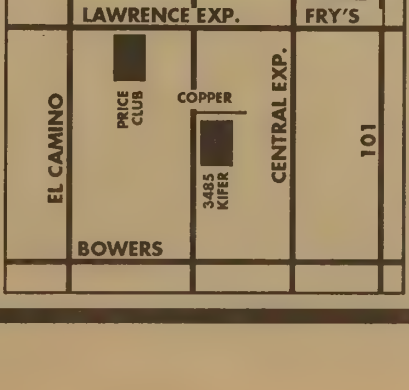

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Prices subject to change w/o notice, not responsible for typographic errors increased, all the computer's operations felt faster—the speed at which the computer booted, Windows booted, etc. Interestingly, in the 386/486 comparisons, the 40MHz 386 with a math coprocessor seemed faster than the 25MHz 486. Yes, the speed of the chip is as important as the type of chip.

## PROS & CONS

Of motherboards I tested, the Deico and QuickPath boards were my favorites, and I would recommend either of them when you decide to upgrade.

The BioStar is a small motherboard with only seven slots. Although it worked fine and has no problems, I did have difficulty matching the physical connections in both of my tower cases—the pinouts on the motherboard did not match up to its slots. I had thought that this was all standardized, but I guess not. Also, the BioStar documentation was inaccurate concerning its description of the exact physical layout of the board.

Generally, I prefer the larger size motherboards. However, with the Hauppague board, there were many unresolved problems with memory under Windows that I did not experience with the other boards. Likewise, the Samsung boards worked but felt flimsy and did not have the high-quality appearance and feel like the Deico and QuickPath boards.

Both the Deico and the QuickPath boards come with excellent documentation, the Deico documentation having an edge. Because both the Deico and the QuickPath can handle a variety of chips and clock speeds, when you upgrade, be sure to carefully read how to set the jumpers to accommodate the clock and the different CPUs.

Basically, I like the Deico for two reasons. The documentation that accompanies this board has exact diagrams of the motherboard and the locations of all the chips and jumpers. The documentation is easy to read and understand. Also, the Deico motherboard is an all-in-one board; you have a PS/2 mouseport, IDE controller, floppy controller, two serial ports, and a parallel port. This setup frees two additional slots on some computers. Each of the ports can be disabled.

I tested the Deico Predator. It can handle 386 and 486 chips at 25MHz to 50MHz speeds. It also supports a wide variety of cache sizes, and comes standard with an AMI BIOS and all the cables necessary to connect

## TRACKING DOWN THE ELUSIVE PROBLEM

There is so much going on inside today's microcomputer, it is sometimes difficult to isolate any particular problem. When there is a conflict, which board is causing the problem? Is the problem a DMA or IRQ problem? What about expanded and extended memory? Does this driver conflict with that driver? Is a TSR conflicting with Windows? Even programs like CheckIt cannot always tell you about every conflict.

### THE ORIGINAL PROBLEM

The cause of the original problem I experienced seemed to lead back to the motherboards. I like using various IDE hard drives to test a system. For instance, I will use a Conner 110MB, a Western Digital 211MB, a Maxtor 211MB drive, and occasionally, a 200+MB Seagate. I also have several IDE controllers that get called into use.

When I first tested the Deico and QuickPath boards, I was already using the Conner drive and had no problems with Windows. Then I started using the 211MB drives. All of a sudden, I had a "32-bit WDCTRL" error from Windows, which informed me that my drive was not compatible with the Western Digital specification and that Windows was going to use the 8-bit driver.

I called Microsoft and was told that this particular error message meant that I had a problem with my IDE controller. Since I had been using the same controller for some time, and had not received this message prior to using the 211MB drives, my first thought was that the drives were at fault. I replaced the hard drives, but the problem did not go away. I tried the controllers on other machines, with other IDE drives and the problem went away. This process seemed to narrow the problem down to both the Deico and the QuickPath motherboards and the way I was trying to use them.

Then early in the year, working with a new beta version of MS-DOS 6, I received a new drive and formatted it as usual. DOS 6 told me that it did not like the way I formatted the drive—I use DrivePro for formatting. Although I reformatted using DOS 6, since I was using DOS, I had to use a different set of IDE translation parameters than those supplied by DrivePro. Finally, after doing all of this, I restarted with Windows and did not get the 32-bit error. I quickly loaded the Deico motherboard and set the same drive parameters in the AMI BIOS and tried the new hard drive. No 32-bit error. Same with the QuickPath board. This was using the same controller and hard drive which had been giving me errors all along.

What I later discovered was that Windows checks the CMOS to see how many cylinders there are for your hard drive. If you have more than 1024 listed, it decides that your drive doesn't meet the 32-bit criteria and refuses to use the 32-bit driver. It doesn't matter if your IDE hard drive works correctly or not. With DrivePro, you are able to use the actual physical parameters when you format your drive so it is possible to have a number greater than 1024 in the CMOS. The MR. BIOS BIOS also allows you to set translation so that you can have a number greater than 1024 in the CMOS. So, setting the CMOS setting below 1024 cylinders for an IDE drive drives away the 32-bit error under Windows.

Since the Microsoft technical support phone line and the CompuServe Microsoft support group never gave me this as an answer, I concluded that the problem was due to the hardware. I spent the next nine months believing I had an odd motherboard problem and was not going to recommend these particular motherboards to anyone.

This type of experience is an example of the tenacity and long memory you must have when dealing with microcomputers. Everything interacts with everything else, in a multiplicity of circumstances. If you keep at it long enough, you might solve everything or, on the other hand, you might develop strange new problems.

*—Woody Liswood*

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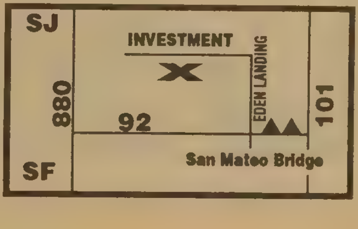

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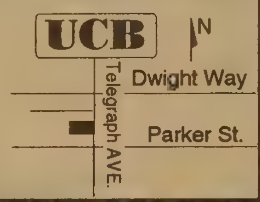

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all of the ports. My only complaint is that the mouseport comes in a DB9 configuration. I tested it with a DB9 to PS/2 mouseport connector, but that did not work. When Deico sent me their cable, which went from the motherboard to a PS/2 DIN connector, everything worked as advertised.

**As an end-user, not an engineer, speed is experienced from a perceptual viewpoint, not as a direct measure. I judge speed by how fast my computer feels.**

My other recommendation is the QuickPath motherboard, which I liked for three reasons. The documentation has an excellent and probably the best discussion of motherboard manufacturing and quality issues that I have read. This motherboard also supports a variety of 486 chips and clock speeds. It includes a ZIF (Zero Insertion Force) socket for the CPU that makes changing the CPU easy—open the insertion lever, remove the CPU by hand, insert the new one, and close lever. You must also change jumpers and/or a clock crystal to match up with your new CPU speed. QuickPath uses a MR. BIOS BIOS. That is my favorite BIOS because it does more than the other BIOS chips available. Lastly, in addition to the normal beep signals, this motherboard has two LED's that continually change to show what the motherboard is doing. This makes it very easy to track down POST (Power On Self Test) or other problems. For example, if the system hangs and the LED displays a "10", this means that the Video ROM failed during the POST routine.

I highly recommend both the Deico or QuickPath motherboards to anyone who wants to upgrade their system. ■

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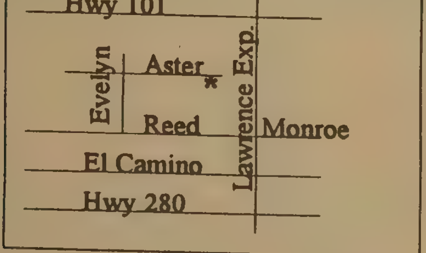

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BMUG is an educational, non-profit, consumer advocacy group organized to share information and provide critical direction to users and developers in the computer community worldwide. It is an independent advocate, not affiliated with any manufacturer, delivering trustworthy information and useful products.

Like any growing organization, it is many different things to its fourteen thousand international members. BMUG supports many Special Interest Groups (SIGs), an 18-line Bulletin Board System (BBS), free HelpLine, software library, weekly meetings, publications, and much more. BMUG also puts out a semi-annual 350+ page book that we call our "newsletter."

Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue at the BMUG main meeting every Thursday evening, 6:30–9:30 (or whenever we finish), in the Physical Sciences Lecture Hall on the UC campus. BMUG West and BMUG South are monthly meetings held in San Francisco and San Jose.

The BMUG Office, 2055 Center Street (a half block from the BART station), is open to the public from 9 am to 5 pm. Please come by and say hello, meet other members, and hang out.

The BMUG Helpline provides volunteer technical assistance and telephonic handholding for our members. If your question can't be answered on the spot, we try to get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try. Improve your Macintosh education, and help others by becoming a Helpline volunteer!

BMUG has one of the most up-to-date, comprehensive software libraries around with hundreds of disks filled with the latest versions of public domain or shareware programs, and HyperCard stacks. New disks are unveiled almost every week at the Thursday general meeting. BMUG also brings you the *TV-ROM™*, a fantastic collection of public domain QuickTime videos.

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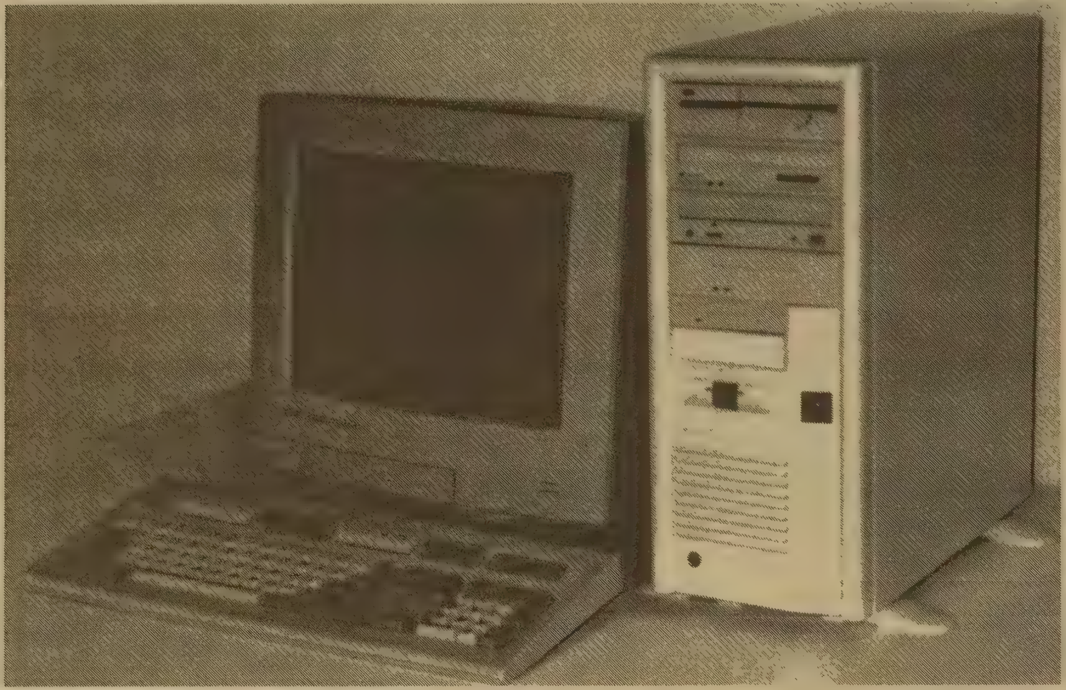

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# $299

**386DX-40**
**Mini Tower System**

- AMD 386DX-40MHz
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- Mini Tower with 230W Power
- TEAC Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD
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(Not Pictured)

## IBM manufactured 486SLC2-50MHz 245Mb/4Mb SVGA System

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- 4Mb Memory
- Monitor 14" SVGA
  Non-Int. .28dpi.

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# $499

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**Medium Tower**

- Alaris Motherboard, Manufactured by IBM
- IBM 486SLC-2/50MHz CPU
- 2 Local Bus 32-Bit Slots
- 7 16-Bit Slots, 1 8-Bit Slot
- 128K Cache
- Medium Tower with 250W UL power Supply
- TEAC Floppy Drive 1.2 or 1.44
- IDE Controller 2FD/2HD
- I/O: 2 serial, 1 Parallel, 1 Game
- 101 Mitsumi Keyboard
- Clock & Calender
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# $779

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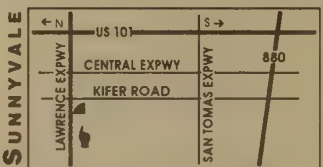

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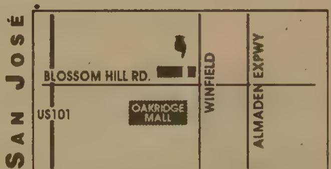

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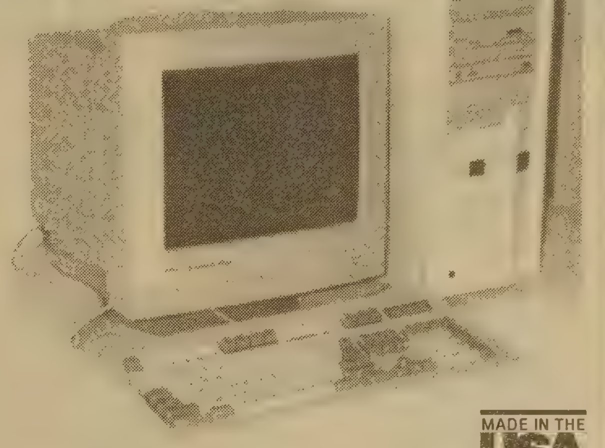
# NCA's Alexis-II Systems

**Featuring** DIAMOND **FastBus VLB** MOTHERBOARDS

intel inside



Monitor and additional accessories shown are not included.

MADE IN THE USA

## The Board

- Diamond FastBus VESA Motherboard
- 2-VESA Local Bus Standard Slots
- Intel CPU 486DX-33, 486DX-50, or 486DX/2-66
- ZIF Socket: Easiest, most effective upgrade
- 0 RAM up to 128MB on Board (uses True 32-bit, 72pin)
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- 256K Write-Back Cache Memory
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- Up to 16MB/Sec I/O Transfer Rate

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- Medium Tower
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  3 Hidden Bays
- High Quality Construction & Design

## & More...

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- 1 Year Parts & Labor
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**486DX-33 VESA Med-Tower System**

### Alexis 455VL-II

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**486VLB Med Tower System**

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**AMI Super Voyager II Board**

intel inside

- Two VESA Local Bus Slots
- Seven ISA Slots
- I/O
- 2FD/2HD Card
- Teac 1.44M or 1.2M Floppy Drive
- Mitsumi Quality 101 Keyboard
- Medium Tower Case
- 250W UL Power Supply
- 0 RAM, Up to 64MB on Board
- 256K Cache
- CPU Cooling Fan
- AMIDiag 4.0 Diagnostic Package Software

| | |
|---|---|
| 486DX33 System | $979 |
| 486DX50 System | $1179 |
| 486DX/2-66 System | $1259 |

### Alexis-III

**486EISA/VLB Med Tower System**

Based On:

**AMI Enterprise III Board**

intel inside

- Eight EISA Bus Slot
- Buffered VESA Local Bus Slots
- 0 RAM up to 256MB on Board
- ZIF Expansion Slots
- 256K Cache
- 2FD / 2HD I/O Card
- Teac 1.44 or 1.2M Floppy Drive
- Focus 8000 Extended Keyboard
- Medium Tower
- 250W UL Power Supply
- CPU Cooling Fan
- AMIDiag 4.0 Dignostic Package Software

| | |
|---|---|
| 486DX33 System | $1169 |
| 486DX50 System | $1369 |
| 486DX/2-66 System | $1399 |

### Alexis-IV

**486 EISA/VLB Med Tower System**

Based On:

**AMI Enterprise IV Board**

intel inside

- Seven EISA Bus Slot
- Two VESA Local Bus Slots
- ZIF Expansion Slots
- On Board I/O
- 2FD / 2HD Card
- Teac 1.44 or 1.2M Floppy Drive
- Focus 8000 Extended Keyboard
- Medium Tower
- 250W UL Power Supply
- CPU Cooling Fan
- AMIDiag 4.0 Dignostic Package Software

| | |
|---|---|
| 486DX33 System | $1239 |
| 486DX50 System | $1429 |
| 486DX/2-66 System | $1479 |

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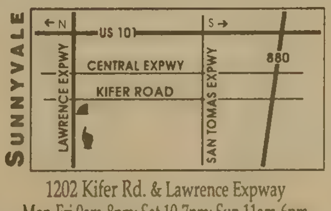

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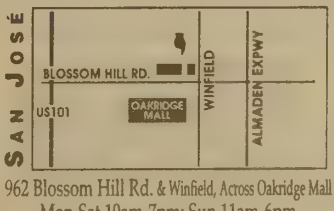

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- ▶ CP30174E

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- ▶ CP30204
  256K CACHE

**250MB IDE** $209
- ▶ 14MS.
- ▶ CP30254

**340MB IDE** $269
- ▶ 13MS.
- ▶ CP30344

**540MB IDE** $529
- ▶ <12ms
- ▶ CP30544 LOW PROFILE 3.5" X1"

**1.37GB SCSI-II** $999
- ▶ <10ms
- ▶ CP31370

**SCSI**

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 170MB | CP30170 | 64K | 17ms | 3.5X1" | $229 | $349 |
| 212MB | CP30200 | 256K | 12ms | 3.5X1" | $289 | $399 |
| 540MB | CP30540 | 256K | 12ms | 3.5X1" | $529 | $689 |

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- ▶ Up to 20MB/Sec Transfer (sync)
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- ▶ 5400RPM
- ▶ 500,000 Hrs. MTBF

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**External** .............................. **$2029**

***Fast* SCSI-II**

| CAPACITY | M/N | CACHE | RPM | SPEED | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 1.0GB | 3107L | 3.5"X1" | 5400 | 9ms | $1049 | $1169 |
| 1.0GB | 3105S | 3.5" | 5400 | 9.5ms | $999 | $1129 |
| **1.6GB** | **3160S** | **3.5"** | **5400** | **9.5ms** | **$1249** | **$1329** |
| **2.0GB** | **5200S** | **FH** | **3600** | **12.5ms** | **$1399** | **$1599** |
| 3.5GB | 5350S | FH | 5400 | 11.5ms | $2899 | $3099 |

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**340MB IDE** $268
12MS. MODEL#WD2340

**420MB IDE** $389
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12MS. MODEL#MK538.
***EXTERNAL $979***

## SAMSUNG
Electronics

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| CAPACITY | SPEED | SIZE | PRICE |
|---|---|---|---|
| 120MB IDE | 17ms | 3.5X1" | .........$159 |

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**FORMATTED CAPACITY**
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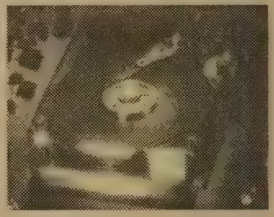

- ▶ HP C2490
- ▶ 8.9ms seek time
- ▶ 6400 RPM
- ▶ 500,000 MTBF
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- ▶ 57 Mbits/sec transfer rate
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EXTERNAL.... $2229

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**SCSI**

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 1.0GB | HPC2247 | 256K | 10ms | 3.5" | $999 | $1129 |
| 1.0GB | HP97558 | 256K | 13ms | FH | $1399 | $1599 |
| **2.0GB** | **HPC3010** | **256K** | **11.5ms** | **FH** | **$1799** | **$1999** |

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### 1.0GB FAST SCSI-II
### LOW PROFILE 3.5"X1"

- ▶ 800,000 Hrs. MTBF
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- ▶ 5Yr. Warr.

INTERNAL $1099

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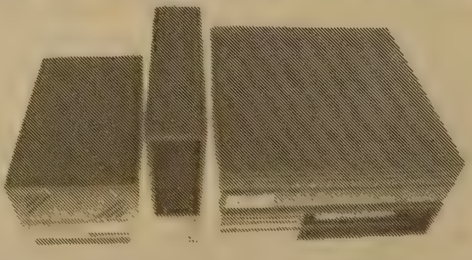

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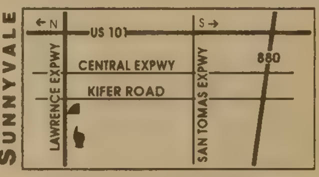

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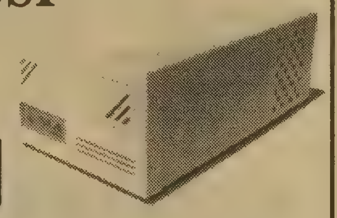

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| 160MB | GO160 | 32K | 16ms | | $369 |
| 85MB | ELS85A | 32K | 17ms | 3.5X1" | $159 |
| 127MB | ELS127A | 32K | 17ms | 3.5X1" | $169 |
| 170MB | ELS170A | 32K | 17ms | 3.5X1" | $179 |
| 240MB | LPS240A | 256K | *Fast* | 3.5X1" | $239 |
| 525MB | LPS525AT | 256K | *FAST* | 3.5X1" | $549 |

## SCSI

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 120MB | GO120S | 32K | *Fast* | FOR MAC POWERBOOKS | $299 | N/A |
| 160MB | GO160S | 32K | 16ms | | $449 | N/A |
| 85MB | ELS85S | 32K | 17ms | 3.5X1" | $169 | $289 |
| 127MB | ELS127S | 32K | 17ms | 3.5X1" | $189 | $309 |
| 170MB | ELS170S | 32K | 17ms | 3.5X1" | $199 | $329 |
| **240MB** | **LPS240S** | **256K** | ***Fast*** | **3.5X1"** | **$269** | **$369** |
| 525MB | LPS525 | 256K | *10ms* | 3.5"X1" | $559 | $679 |
| 700MB | PD700 | 256K | *Fast* | 3.5" | $759 | $879 |
| 1.0GB | PD1050S | 512K | *Fast* | 3.5" | $899 | $1029 |
| 1.2GB | PD1225S | 512K | *Fast* | 3.5" | $969 | $1089 |
| 1.8GB | PD1800S | 512K | *Fast* | 3.5" | $1299 | $1429 |

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ST11950N

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ST12550N

INTERNAL **$CALL**
**EXTERNAL $2199**

## IDE

| CAPACITY | M/N | CACHE | SPEED | SIZE | PRICE |
|---|---|---|---|---|---|
| 42MB | ST351A/X | 32K | 28ms | 3.5X1" | $129 |
| 130MB | ST3144A | 32K | 16ms | 3.5X1" | $179 |
| 260MB | ST3290A | 128K | 12ms | 3.5X1" | $249 |
| 341MB | ST3390A | 256K | 12ms | 3.5X1" | $329 |
| 452MB | ST3550A | X | 12ms | 3.5X1" | $449 |

## SCSI

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 248.6MB | ST3283N | 128K | 12ms | 3.5X1" | $339 | $459 |
| 456MB | ST3550N | 256K | 12ms | 3.5X1" | $559 | $679 |
| 525MB | ST3600N | 256K | 12ms | 3.5X1" | $679 | $799 |
| 1.05GB | ST11200N | 256K | 12ms | 3.5" | $949 | $1059 |
| **1.0GB** | **ST31200N** | **256K** | **10ms** | **3.5"x1"** | **$1089** | **$1199** |
| 1.37GB | ST41601N | 256K | 11.5ms | FH | $CALL | $1899 |
| 1.4GB | ST41651 | 256K | 15ms | FH | $1189 | $1389 |
| 1.9GB | ST42100N | 256K | 12.9ms | FH | $1489 | $1689 |
| 2.1GB | ST42400N | 256K | 11ms | FH | $1749 | $1949 |
| 2.1GB | ST12400N | 256K | 10ms | 3.5" | $CALL | $2029 |
| 2.9GB | ST43400N | 512K | 11ms | FH | $2299 | $2499 |
| 2.9GB | ST43401N | 512K | Fast-Wide SCSI-II | 5.25 | $2499 | $3699 |

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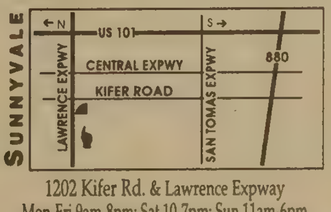

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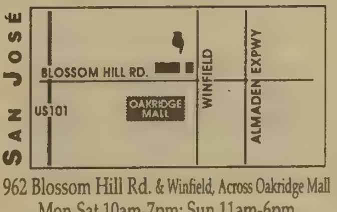

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### IDE

| CAPACITY | M/N | CACHE | SPEED | SIZE | PRICE |
|---|---|---|---|---|---|
| 131MB | 7131A | 64K | 14ms | 3.5X1" | .....$169 |
| 245MB | 7245A | 64K | 15ms | 3.5X1" | .....$209 |
| 345MB | 7345A | 64K | 14ms | 3.5X1" | .....$269 |
| 540MB | MXT-540A | 256K | 8.5ms | 3.5X1" | .....$689 |

### SCSI

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 245MB | 7245S | 64K | 15ms | 3.5X1" | $249 | ......$359 |
| 345MB | 7345S | 64K | 14ms | 3.5X1" | $349 | ......$469 |
| **540MB** | **MXT-540S** | **256K** | **8.5ms** | **3.5X1"** | **$689** | **......$799** |
| **1.2GB** | **MXT-1240S** | **256K** | **8.5ms** | **3.5"** | **$1149** | **...$1269** |

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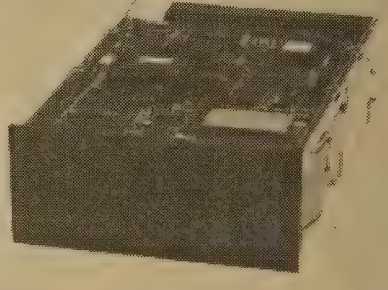
**520MB SCSI 3.5"**

- ▶ 3.5" HH Drive
- ▶ 12ms Seek Time
- ▶ 240K Read/Write Cache(SCSI)
- ▶ 5-Year Warranty

M2624FA

LOWEST NCA PRICES EVER

**$569**



### IDE

| CAPACITY | M/N | CACHE | SPEED | SIZE | PRICE |
|---|---|---|---|---|---|
| 520MB | M2624T | 64K | 12ms | 3.5" | ......$599 |

### SCSI

| CAPACITY | M/N | CACHE | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 425MB | M2623FA | 240K | 11ms | 3.5" | ....$549 | ....$669 |
| 520MB | M2624FA | 240K | 12ms | 3.5" | ....$569 | ....$689 |
| 1.0GB | M2694ESA | 256K | 10ms | 3.5" | ....$879 | ....$999 |
| **2.0GB** | **M2654SA** | **256K** | **12ms** | **FH** | **...$1599** | **.$1799** |

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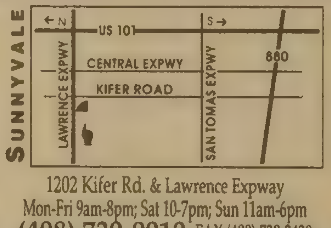

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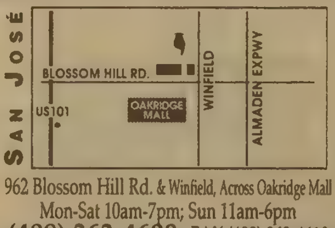

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Novell Labs Tested & Approved

- MC2217
- 10ms Seek Time 5400RPM
- 3.5"

**$1489**

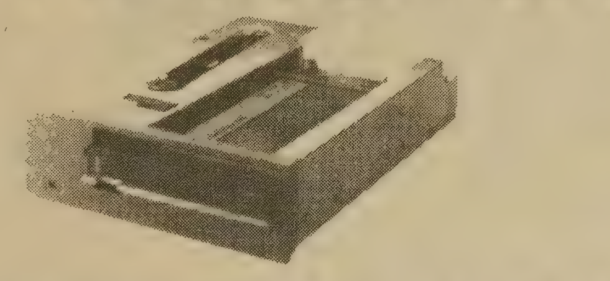
### IDE

| | MODEL | RPM | SPEED | SIZE | INTERNAL |
|---|---|---|---|---|---|
| 1.0GB | MC2210A | 5400 | 10ms | 3.5" | ......$969 |
| 1.75GB | MC2217A | 5400 | 10ms | 3.5" | ....$1489 |

### SCSI

| | MODEL | RPM | SPEED | SIZE | INTERNAL | EXTERNAL |
|---|---|---|---|---|---|---|
| 670MB | MC1624 | 3600 | 14ms | HH | .....$729 | .....$849 |
| 1.0GB | MC2210 | 5400 | 10ms | 3.5" | ....$969 | ...$1089 |
| 1.0GB | MC1598 | 3600 | 15ms | FH | .....$969 | ...$1169 |
| **1.3GB** | **MC1528** | **3600** | **15ms** | **FH** | **.....$999** | **..$1199** |
| 1.4GB | MC1908 | 5400 | 11ms | FH | ....$1699 | ....1899 |
| 1.75GB | MC2217 | 5400 | 10ms | 3.5" | ...$1489 | ..$1599 |
| 1.8GB | MC1548 | 3600 | 14ms | FH | ....$1199 | ..$1399 |
| 2.0GB | MC1924 | 5400 | 11ms | FH | ....$1999 | ..$2199 |
| 3.0GB | MC1936 | 5400 | 11ms | FH | ....$2499 | ..$2699 |

## WANGTEK



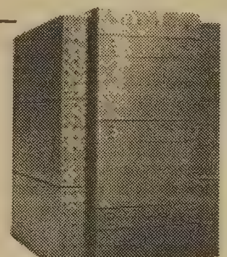
### 250MB SCSI TAPE BACKUP

USES 6250MB
1/4" TAPE
CARTRIDGE

**$299**

**EXTERNAL..............................$399**

## RAIDION™



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|---|---|---|
| LT1120 | Lite 3X560MB Modules | ..........$4299 |
| LT2100 | Lite 3X2.1GB Modules | ..........$5200 |
| RN2680 | 3X1.34GB Modules | ..........$6599 |
| RN3500 | 3X1.75GB Modules | ..........$8299 |
| RN4200 | 3X2.1GB Modules | ..........$9599 |
| RM6040 | 3X3.0GB Modules | ..........$11999 |

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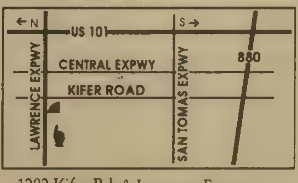

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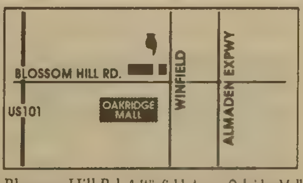

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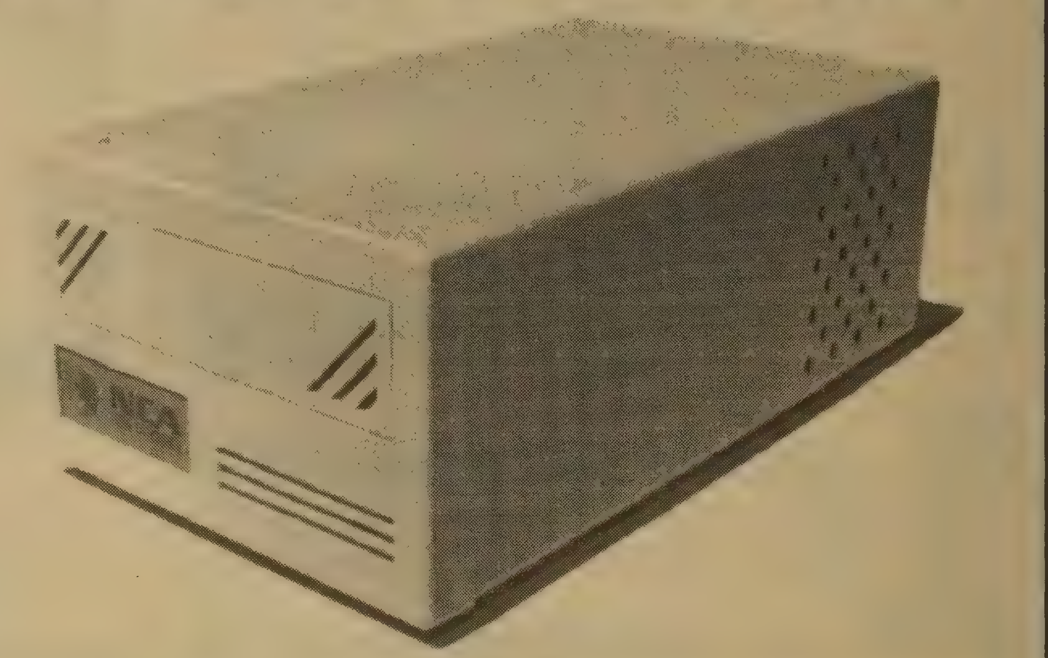

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- Universal Power Supply 110/220V
- 2 External Centronics Connectors
- Selectable SCSI ID.
- External Termination / includes a terminator
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- Fully Tested and Approved
- Mac Formatting and Caching Software (upon request)
- External PC Kits Available

NCA's

### BARRACUDA I

*Half Height Enclosures*
*3.5" Fixed SCSI Disk Drives*

| SIZE Formatted | MAKE | SPEED | WARRANTY | PRICE |
|---|---|---|---|---|
| 85Mb | Quantum | 17ms | 2Yr | $289 |
| 127Mb | Quantum | 17ms | 2Yr | $309 |
| 170Mb | Quantum | 17ms | 2Yr | $329 |
| 240Mb | Qauntum | Fast | 2Yr | $369 |
| 240Mb | Seagate | 12ms | 1Yr | $459 |
| 245Mb | Maxtor | 15ms | 2Yr | $359 |
| 345Mb | Maxtor | 15ms | 2Yr | $469 |
| 425Mb | Seagate | 10ms | 1Yr | $679 |
| 520Mb | Fujitsu | 12ms | 5Yr | $689 |
| 525Mb | Quantum | 10ms | 2Yr | $679 |
| 525Mb | Seagate | 10ms | 1Yr | $799 |
| 540Mb | Maxtor | 8.5ms | 2Yr | $799 |
| 540Mb | Conner | 12ms | 1Yr | $689 |
| 700Mb | Quantum | fast | 5Yr | $879 |
| 877Mb | Toshiba | 12ms | 5Yr | $929 |
| 1.0Gb | Micropolis | 10ms | 5Yr | $1089 |
| 1.0Gb | IBM | 8ms |  | $1199 |
| 1.0Gb | Seagate | 10ms | 5Yr | $1059 |
| 1.0Gb | HP | 10ms | 5Yr | $1129 |
| 1.0Gb | DEC | 9.5ms | 5Yr | $1129 |
| 1.0Gb | Fujitsu | 10ms | 5Yr | $999 |
| 1.2Gb | Quantum | 12ms | 5Yr | $1089 |
| 1.2Gb | Maxtor | 8.5ms | 3Yr | $1269 |
| 1.2Gb | Toshiba | 12ms | 5Yr | $979 |
| 1.37Gb | Conner | 10ms | 1Yr | $1129 |
| 1.6Gb | DEC | 9ms | 5Yr | $1329 |
| 1.6Gb | Seagate | 8ms | 5Yr | $1799 |
| 1.7GB | Seagate | 10ms | 5Yr | $1429 |
| 1.7Gb | Micropolis | 10ms | 5Yr | $1599 |
| 2.1Gb | Seagate | 10ms | 5Yr | $2029 |
| 2.1Gb | Seagate | 8ms | 5Yr | $2199 |
| 2.1Gb | HP | 8.9ms | 5Yr | $2229 |
| 2.1Gb | DEC | 9ms | 5Yr | $2029 |

NCAs

### BARRACUDA II

*Full Height Enclosures*
*FH Fixed SCSI Disk Drives*

| SIZE Formatted | MAKE | SPEED | WARRANTY | PRICE |
|---|---|---|---|---|
| 1.0Gb | Micropolis | 14ms | 5Yr | $1169 |
| 1.0Gb | Maxtor | 13ms | 2Yr | $1099 |
| **1.3Gb** | **Micropolis** | **14ms** | **5Yr** | **$1199** |
| 1.4Gb | Micropolis | 11ms | 5Yr | $1899 |
| 1.3Gb | Seagate | 11ms | 1Yr | $1899 |
| 1.4Gb | Seagate | 14ms | 1Yr | $1389 |
| 1.5Gb | Maxtor | 13ms | 2Yr | $1329 |
| 1.8Gb | Micropolis | 14ms | 5Yr | $1599 |
| 1.9Gb | Seagate | 14ms | 5Yr | $1689 |
| 2.1Gb | Seagate | 11ms | 5Yr | $1949 |
| 2.0Gb | Micropolis | 11ms | 5Yr | $2199 |
| 2.0Gb | Fujitsu | 11ms | 5Yr | $1899 |
| 2.0Gb | HP | 11.5ms | 5Yr | $1999 |
| **2.0Gb** | **DEC** | **12ms** | **5Yr** | **$1599** |
| 3.0Gb | Micropolis | 11ms | 5Yr | $2699 |
| 2.9Gb | Seagate | 11ms | 5Yr | $2499 |
| 3.5Gb | DEC | 11.5ms | 5Yr | $3099 |
| 4.0Gb | IBM | 11ms | 5Yr | $3999 |

**Combo SCSI Devices**
**Custom Configurations**
**Available**

NCA's

### BARRACUDA III

*External*
*Non-Fixed SCSI Devices*

#### SCSI BACKUP:

| SIZE(UPTO) | MAKE | MODEL | TYPE | PRICE |
|---|---|---|---|---|
| **250Mb** | **WangTec** | **5150** | **1/4"** | **$399** |
| 250Mb | Archive | 2150S | 1/4" | $449 |
| 525Mb | Archive | 2525S | 1/4" | $599 |
| 1.3Gb | Archive | 2750S | 1/4" | $899 |
| 2.0Gb | Archive | 4540NT | 4mm | $1149 |
| 4.0Gb | Archive | 4324NT | 4mm | $1299 |
| 8.0Gb | Archive | 4542NT | 4mm | $1299 |
| 2.2Gb | Exabyte | EXB8200 | 8mm | $1799 |
| 2.2Gb | Exabyte | EXB8205 | 8mm | $1749 |
| 5.0Gb | Exabyte | EXB8500 | 8mm | $2649 |
| 5.0Gb | Exabyte | EXB8505 | 8mm | $2599 |
| 2.0Gb | HP | 35470 | 4mm | $1099 |
| 8.0Gb | HP | 35480 | 4mm | $1199 |
| 2.0GB | WangDat | 3100 | 4mm | $1099 |
| 8.0Gb | WangDat | 3200 | 4mm | $1199 |

*MAC Backup Software add $ 79*
*NovaBack for PC add $ 99*
*NovaNet for 100+usersadd$449*

#### EXTERNAL SCSI CD ROMs:

| MAKE | MODEL | ACCESS | TRANSFER | PRICE |
|---|---|---|---|---|
| TOSHIBA | 3401B | 200ms | 330KB | $499 |
| NEC | 84-1 | 265ms | 330Kb | $529 |
| PANASONIC | 532 | 290ms | 200Kb | $439 |
| CHINON | 535 | 280ms | 300Kb | $489 |
| TEXEL | 5024 | 265ms | 300Kb | $469 |
| PIONEER | 604X | 300ms | 612Kb | $1199 |
| TEAC | CD-50 | 265ms | 300Kb | $419 |

Also Available:
External OPTICALS & Removable Cartridges by:
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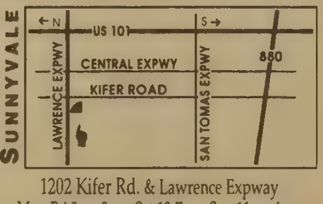

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INTRODUCING
2842-VL
Fast SCSI-II VESA **$329**

**SCSI CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| 1510 | CD ROM 16-BIT -SCSI CARD KIT | $99 |
| 1522 | 16-BIT 7HD/2FD KIT | $148 |
| 1542C | BUS MASTER COMPLETE KIT | $248 |
| 1542C+ | BUS MASTER KIT WITH COREL SCSI | $314 |
| 1640 | MICROCHANNEL FOR PS/2, 7HD | $319 |
| 2742 | EISA KIT, 14HDS • • NEW • • | $399 |

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Caching Controllers

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**SCSI CONTROLLERS**

DC-2040 CACHING 16-BIT SCSI-ISA ...$159
W/0MB (UP TO 16M)

### American Megatrends

**SCSI CONTROLLERS**

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|---|---|
| FastDisk NC EISA non-cache SCSI cont. | $329 |
| FastDisk EISA Caching Controller up to 16MB | $449 |
| FastDisk VLB VESA Local Bus Caching Controller | $449 |

### BUSLOGIC

SCSI CONTROLLERS FOR POWER USERS

**SCSI CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
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| BT445 | VESA SCSI-II KIT | $299 |
| BT545KT | BUSMASTER Fast SCSI | $229 |
| BTB742KT | EISA SCSI-II Kit | $349 |
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| IN2000 | 16 BIT 7HD/2FD "Easiest to use" | $179 |
| IN2000 | PRO WITH COREL SCSI | $215 |
| AL1000 | SCSI TO PARALLEL | $159 |
| AL1000 | PRO ABOVE WITH COREL SCSI | $185 |

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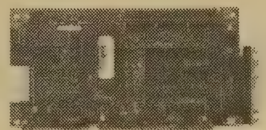

PLUG & PLAY

**SCSI CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| TMC850 | 8-BIT W/BIOS | $59 |
| TMC1670 | SVP 16-BIT SCSI VALUE PAK | $149 |
| TMC1680 | SVP 16-BIT VALUE PACK 7HD/4FD | $159 |
| TMC1680 | DNK 16-BIT 7HD/4FD FULL KIT | $239 |

### TRANTOR

FULL KITS W/DRIVERS FOR CD-ROM/OPTICAL... ETC.

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| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| T130 | 8-BIT, 7HD w/ SCSI works | $79 |
| T228 | MICROCHANNEL, 7HD | $139 |
| T338 | PARALLEL PORT to SCSI ADAPTER | $109 |
| T348 | PARALLEL PORT to SCSI PLUS | $149 |

TRANTOR SCSI Works
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TAPEMATE II Back-up software & Music Box-Audio CD Software

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**SCSI CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| 14F | FD/HD (10MB/SEC) | $199 |
| 24F | EISA, 64K, *Fast* (33MB/SEC) | $369 |
| 34F | VESA Local Bus Controller | $279 |

## IDE CONTROLLERS

### STANDARD IDE

**IDE CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| 200 | 2HD/2FD CONTROLLER W/CABLES | $14 |
| 211 | 2HD/2FD W/2SERIAL, 1PAR, 1GAME | $23 |
| NCL53 | SMART CONT. W/BIOS EASY INSTALL | $49 |
| **223** | **2HD/2FD for VESA LOCAL BUS I/O** | **$59** |
| 15C | CACHING (UP TO 8MB), 2HD, 2FD **UltraStor** | $199 |

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**IDE CACHING CONTROLLERS**

| MODEL | DESCRIPTION | PRICE |
|---|---|---|
| DC-100 | CACHING with I/O | $119 |
| **DC-200** | **CACHING (0MB, up to 16MB) 4HD/2FD** | **$99** |
| DC-4030 | VESA LOCAL BUS (0MB up to 16MB) 4HD/2FD/1 tape | $139 |

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*Increases Performance of IDE Drives, Floppy Drives, & doubles transfer rate on Floppy Tape Back-ups*

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| 18V | CO-EXIST, HIGH PERF. IDE card | $49 |
| 21V | 2HD (WITH BIOS), 4FD (UP TO 2.88M) | $59 |

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### VESA Local Bus IDE Controller

DATA TECHNOLOGY CORPORATION **$59**

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2 IDE DRIVES/2 FLOPPY
2 HIGH SPEED 16550 SERIAL PORTS
1 PARALLEL PORT / 1 GAME **$79**

### PORT-FOLIO 16550

QUICKPATH

13-Port Super I/O Card
4 INTEGRATED NS16550 HIGH SPEED UARTs

2 IDE HD
2 Parallel
4 Serial
4 Floppy
1 Game

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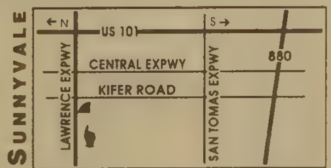

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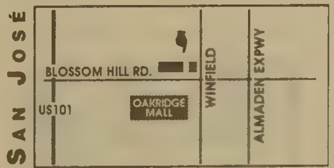

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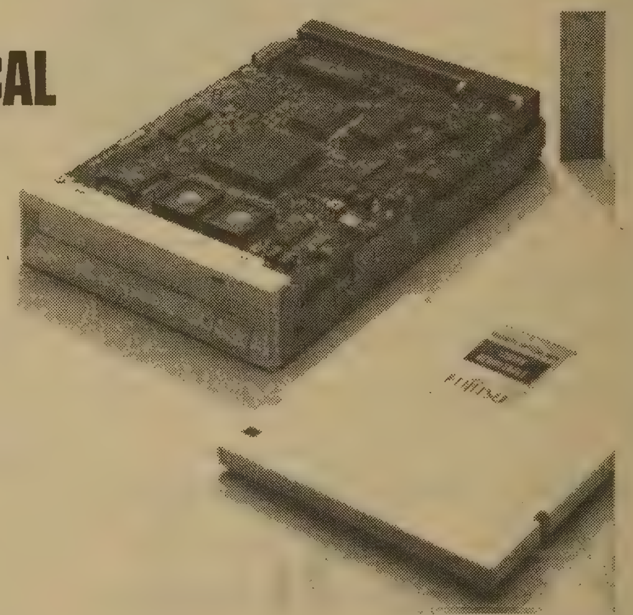
- 256K Cache

**$789**



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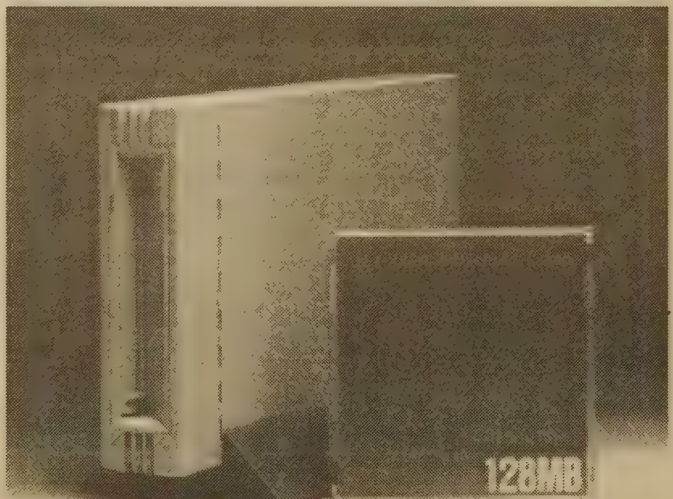
DynaMO™ 128

## EXTERNAL SCSI 128MBYTE, 3.5" REWRITABLE OPTICAL

### FOR MAC OR IBM



- External Optical Drive
- Using 2511A Internal
- Includes 1 Cartridge
- Fast 30ms Seek Time
- 3600RPM
- 256K Cache
- Software for MAC (free upon request)

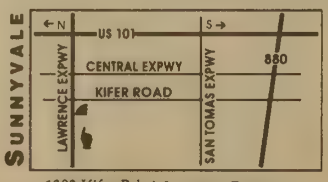
**$899**

**OPTICAL CARTRIDGES**

| CAPACITY | SINGLE | 5-PACK |
|---|---|---|
| 128MB Fujitsu | $49 | $239 |
| 128MB Maxell | $42 | $199 |

*Your Hard Drive & Multimedia Super Source*

**NCA Computer Products**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CENTRAL EXPWY
KIFER ROAD
880
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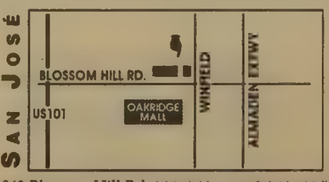
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# REMOVABLE SUPER SOURCE

## OPTICALS

**HEWLETT PACKARD**

### 1.3Gig OPTICAL REWRITABLE DRIVE

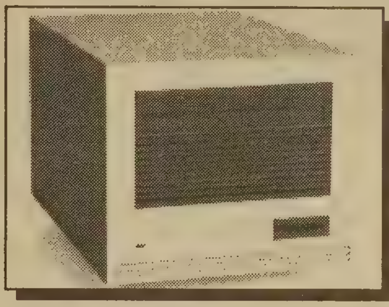
- HP C1716T,
- SCSI-2 1.3GB

| INTERNAL | EXTERNAL WITH CARTRIDGE |
|---|---|
| $2499 | $2899 |

1.3GB Cartridge..........................$129

**Multifunction Magento-Optical Disk Drive for 1-Gbyte and 650-Mbyte Rewritable and WORM Disk Cartridges, With up to 4-Mbytes Read/Write cache**

**Maxoptix™**



- Unlimited Data Storage
- External SCSI Subsystem
- One year factory warranty
- 25-Year life of Glass Media
- Embedded SCSI/SCSI-2
- Data Transfer of up to 13.2Mbit/Sec.
- Ultimate Back-up for NOVEL (Ready-to-Boot Backup)

1GB CART.
glass/poly
$199

**TAHITI IIM - Multifunction**

- 1MB Read/WriteCache
- External SCSI
- 35ms

$2389

**TAHITI IIM - Multifunction**

- 4MB Read/Write Cache
- External SCSI
- 35ms

$2595

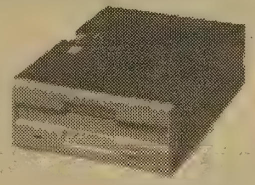
INTRODUCING
**TAHITI IIIm**
1.3GB Multi Function Optical

| 1MB Cache | 4MB Cache |
|---|---|
| $2899 | $3099 |

**RICOH**

### 128MBYTE, 3.5" REWRITABLE OPTICAL

- Shielded case
- 3000 RPM
- 256K Cache
- Approx. 40ms
- SCSI-II



| INTERNAL | EXTERNAL WITH CARTRIDGE |
|---|---|
| $719 | $889 |

## FLOPPY DRIVES

**TEAC**

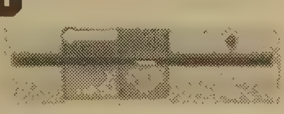
### 1.44M 3.5"

$39

5.25" Bracket... $6

### 1.2M 5.25"

$49



### 1.2M/1.44M DUAL DRIVE

$119

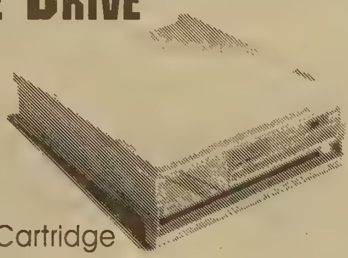
**TOSHIBA**

2.88MB TOSHIBA Floppy Drive ................$59.00

## REMOVABLES

**BERNOULLI**

### 150MB EXTERNAL SCSI CARTRIDGE DRIVE



- Cables
- One 150MB Cartridge

CARTRIDGE INCLUDED

For MAC or IBM

$539

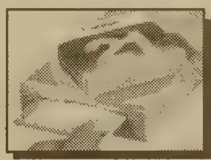
90MB BERNOULLI REMOVABLE
**PC VERSION ......$689 MAC Transportable ..$529**

| BERNOULLI CARTRIDGES | SINGLE | 3-PACK |
|---|---|---|
| 65MB | $79 | $219 |
| 90MB | $159 | $439 |
| 105MB | $109 | $289 |
| 150MB | $159 | $429 |

## FLOPTICALS

**IOMEGA®**

21MB Floptical Drive



floptical®

**MAC Version**

INCLUDES:

- External 3.5" 21MB Floptical
- One Floptical Media
- Cables
- Software for MAC

$399

21MB MEDIA BY IOMEGA LASER ETCHED
**SINGLE ......$19.99 5-PACK......$89.99**

**PC Version**

INCLUDES:

- IOMEGA 21MB 3.5" Floptical
- One Floptical Media
- Host adapter SCSI 8-bit
- Cables
- Software for PC

| INTERNAL | EXTERNAL |
|---|---|
| $369 | $429 |

21MB MEDIA BY IOMEGA LASER ETCHED
**SINGLE ......$19.99 5-PACK......$89.99**

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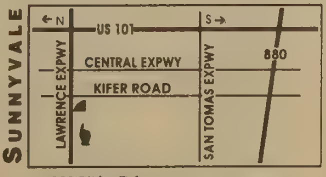

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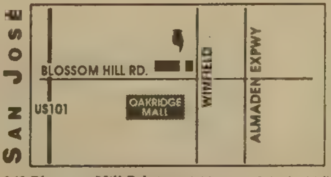

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# EXABYTE SUPER SOURCE

EXABYTE®

## FS1G
## 1.5Gb SCSI Tape Storage

### Complete System Includes

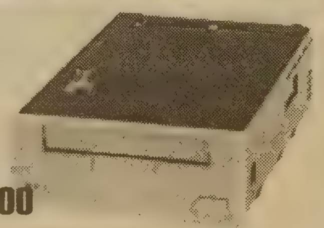
- External FS1G Tape Drive
- Adaptec 16-Bit SCSI Controller Card
- File Secure Software
- One Data Cartridge
- Up to 30MB/min. Transfer

**$995**

Extra 1.5GB Cartridge $39

## *Exabyte 4mm DAT Cartrige Tape SCSI Subsystem*

### 2GB EXB-4200



3.5"

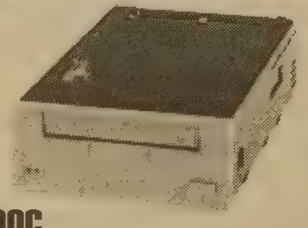
**2GB model 4200**

- 2GB Native Capacity
- 233Kb/Sec Transfer Rate
- 20ms Avg. Access Time
- 3.5" Form Factor

**$999**

External..........$1099

### 4GB EXB-4200c



3.5"

**4GB model 4200C**

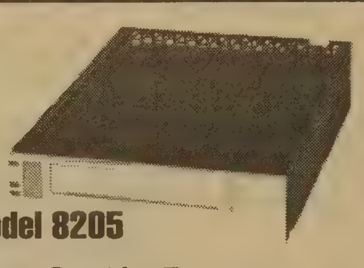
- 4-5GB Compression Capacity
- 466Kb/Sec Transfer Rate
- 20 Sec Avg. Access Time
- 3.5" Form Factor

**$1099**

External..........$1199

## *The Best Name in 8mm Cartridge Tape Subsystems*

### 2.5GB EXB-8205



**2.5GB model 8205**

- Half-height, 8mm Cartridge Tape
- Intelligent IDRC algorithm data compression
- 5GB capacity at 500Kb/Sec (compressed)
- MTBF 80,000 hours

**$1499**

External..........$1749

### 2.5GB EXB-8200

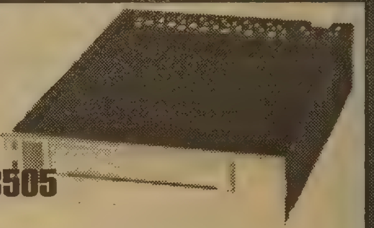
**2.5GB model 8200**

- Full-height, 8mm Cartridge Tape
- On-Board Error Correct Code & Recovery Products
- 256K buffer
- 246Kb/Sec Transfer Rate

**$1499**

External..........$1799

### 5GB EXB-8505



**5GB model 8505**

- Half-height, 8mm Cartridge Tape
- Intelligent IDRC algorithm data compression
- 10GB capacity at 1MB/Sec (compressed)
- MTBF 80,000 hours

**$2349**

External..........$2599

### 5GB EXB-8500

**5GB model 8500**

- Full-Height, 8mm Cartridge Tape
- 500Kb/Sec Transfer Rate (up to 4MB/Sec Synchronous)
- 1MB Cache Buffer

**$2399**

External..........$2649

**8mm 112m Tapes (up to 5.0GB)**

Single $18 5-Pack $89

Cleaning Cartridges (12Pass)........$29

*Your Hard Drive & Multimedia Super Source*

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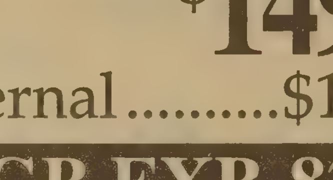

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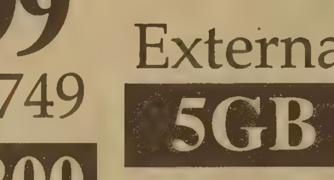

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# TAPE BACK-UP SUPER SOURCE

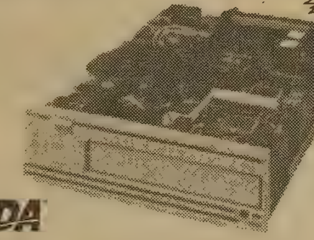
## ARCHIVE

for IBM Compatibles, MAC, SUN, & NeXT

*The BEST name in SCSI Back-up Drives*

SCSI

LOWEST NCA PRICES EVER



### ANACONDA

- ◆ 36MB/MIN
- ◆ SCSI-2
- ◆ 1/4" TAPE UNIT

| **1.3GB 2750** | **2.0GB 2800** |
|---|---|
| INTERNAL ......$799 | INTERNAL ......$999 |
| EXTERNAL .....$899 | EXTERNAL ..$1099 |

### VIPER

| **2150** | | **2525** | |
|---|---|---|---|
| ◆ 250MB VIPER | | ◆ 525MB VIPER | |
| ◆ 6MB/MIN. | | ◆ 6MB/MIN. | |
| INT. | EXT. | INT. | EXT. |
| $349 | $449 | $499 | $599 |

### PYTHON

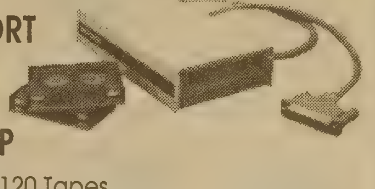
| **4324 TURBO PYTHON** | | **4320NT** | | **4542NT** | |
|---|---|---|---|---|---|
| ◆ 4GB DAT 4mm | | ◆ 2.0GB DAT 4mm | | ◆ 4-8GB DAT 4mm | |
| ◆ 1MB Cache Buffer | | ◆ 11MB/MIN. | | ◆ 11MB/MIN. | |
| INT. | EXT. | INT. | EXT. | INT. | EXT. |
| $1179 | $1299 | $1049 | $1149 | $1179 | $1299 |

## MicroSolutions

Computer Products

## backpack

**PARALLEL PORT**
**250MB**
**EXTERNAL**
**TAPE BACKUP**



- ▶ QIC 80 Uses 2120 Tapes
- ▶ Software with Unattended Backups
- ▶ Twice as fast as internal tape

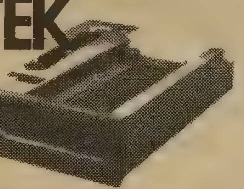
**$329**

## CONNER

TAPE STOR 250MB TAPE BACKUP
INCLUDES 1 CARTRIDGE

| **INTERNAL** | **EXTERNAL** |
|---|---|
| RUNS OFF FLOPPY PORT | RUNS OFF PARALLEL PORT |
| **$139** | **$329** |

## WANGTEK



### 250MB SCSI TAPE BACKUP

**$299**

Uses DC6250
1/4" Cartridge

**External 250MB SCSI ............................$399**

**SCSI QIC-Format**

| CAPACITY | MODEL | INTERNAL | EXTERNAL |
|---|---|---|---|
| 525MB | 5525 1/4" SCSI | $599 | $699 |

## WangDAT™

**SCSI 4mm DAT**

| CAPACITY | MODEL | INTERNAL | EXTERNAL |
|---|---|---|---|
| 2.0GB | 3100 DAT | $999 | $1099 |
| 4-8GB | 3200 DAT | $1099 | $1199 |

## HEWLETT PACKARD

*Setting the Standards*

**SCSI 4mm DAT**

| CAPACITY | MODEL | INTERNAL | EXTERNAL |
|---|---|---|---|
| 2.0GB | 35470 DAT | $999 | $1099 |
| 4-8GB | 35480 DAT | $1099 | $1199 |
| 4-16GB | C1533A | $1699 | $1829 |

## TAPE CARTRIDGES

*Refer to page 21 of this Catalog*

## COLORADO MEMORY SYSTEMS INC.

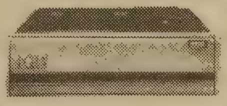
Uses 2120 Tapes

**RUNS OFF FLOPPY PORT**

| CAPACITY | MODEL/TYPE | INTERNAL |
|---|---|---|
| 120MB | DJ10JUMBO | $139 |
| 250MB | DJ20JUMBO | $169 |
| EXTERNAL KIT WITH CARD AND CABLES KE-10 | | $109 |
| EXTERNAL TAPE PORT AB-11 | | $39 |
| FC-10 TAPE CONTROLLER, WITH CABLES | | $89 |
| FC-15 HIGH PERFORMANCE 16-BIT CONTROLLER | | $189 |

## POWERTAPE™

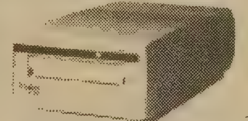
SERIES 4000



**SCSI Standard QIC-Format**

| | | |
|---|---|---|
| **2GB** | Internal ...........$959 | External ........$1099 |
| **4GB** | Internal .........$1489 | External ........$1629 |

## Trakker™



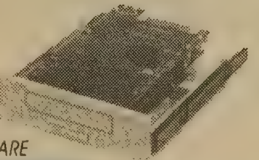
PARALLEL PRINTER PORT EXTERNAL TAPE BACK-UP SYSTEMS

**RUNS OFF PARALLEL PRINTER PORT**

| CAPACITY | MODEL/TYPE | EXTERNAL |
|---|---|---|
| 120MB | TRAKKER 120 | $289 |
| **250MB** | **TRAKKER 250** | **$349** |

## SUMMIT™

MEMORY SYSTEMS INC.



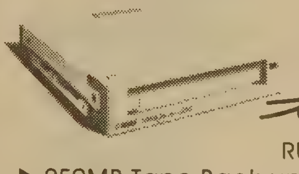
*WITH CENTRAL POINT BACKUP SOFTWARE*

**RUNS OFF FLOPPY PORT**

| CAPACITY | MODEL/TYPE | INTERNAL |
|---|---|---|
| 120MB | SE-120 | $129 |
| 250MB | SE-250 | $169 |

## I·OMEGA

*tape 250*



RUNS OFF FLOPPY PORT

- ▶ 250MB Tape Back-up
- ▶ fits Standard 3.5" floppy bay
- ▶ Reads QIC Tape and Irwin tapes
- ▶ Central Point Software
- ▶ Windows Support

**Tape 250 Insider**

**$189**

**EXTERNAL**
**PC-POWERED........ $319**

**EXTERNAL TAPE 250 PARALLEL PORT ......$379**

IOMEGA 250MB Formatted tapes
**Single ...........$29** **3Pack ............$79**

## IRWIN

An Archive Company

**RUNS OFF FLOPPY PORT**

| CAPACITY | MODEL/TYPE | INTERNAL |
|---|---|---|
| 120MB | ARC120 | $139 |
| 250MB | ARC250 | $189 |

PARALLEL PRINTER PORT *EXTERNAL* TAPE BACK-UP

**RUNS OFF PARALLEL PRINTER PORT**

| CAPACITY | MODEL/TYPE | EXTERNAL |
|---|---|---|
| 120MB | AccuTRAK 120 | $339 |
| 250MB | AccuTRAK 250 | $399 |

## BACKUP SOFTWARE

## NovaStor

***BEST BACKUP SOFTWARE***

| DESCRIPTION | PRICE |
|---|---|
| NovaBack for DOS | $99 |
| NovaBack for OS/2 | $149 |
| NovaNet-Server Based Software (up to 100 users) | $449 |
| Sytos Plus™ for Adaptec (ASW-310) | $99 |

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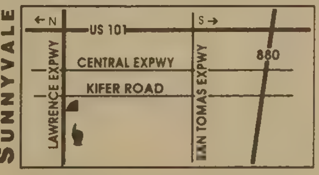
SUNNYVALE



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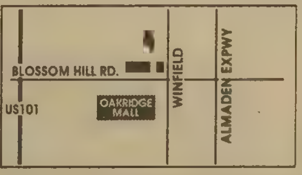

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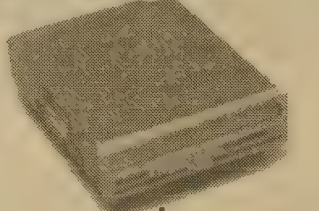
# REMOVABLES SUPER SOURCE

## SyQuest TECHNOLOGY

- Removable Drive Cartridge, 44MB, 88MB, & 105MB
- 20ms Access speed (14ms on 105MB) • Unlimited Storage
- SCSI Embedded • For MAC or IBM • 2-Yr Warranty

## BARE DRIVES

LOWEST NCA PRICES EVER



### 44MB

- SQ555
- SCSI
- 20ms SEEK TIME
- 5.25" HH

**$235**

### 88MB

- SQ5110
- SCSI
- 20ms SEEK TIME
- 5.25" HH
- Reads 44MB
- Reads/Writes to 88MB

**$279**

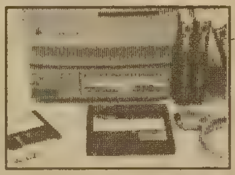
### 88MB C

- SQ5110C
- SCSI
- 20ms SEEK TIME
- 5.25" HH
- Reads/Writes to 44MB &88MB

**$299**

## FOR ALL MACINTOSH MODELS*

**Complete, Preformatted, Plug & Play External Kits.**



- EXTERNAL SYQUEST DRIVE
- CARTRIDGE
- CABLES (50C-Mac or 50C-50C)
- STANDARD POWER CORD
- FORMATTING SOFTWARE ($39 Value)

*Macintosh Plus or later

| | |
|---|---|
| 44MB SQ555 | $389 |
| 88MB SQ5110 | $459 |
| 88MB C SQ5110C | $489 |
| 105MB SQ3105 | $629 |

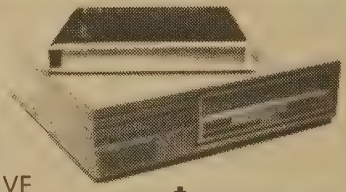
## CARTRIDGES

| Capacity | Single | 5-Pack |
|---|---|---|
| 44MB | $63 | $309 |
| 88MB | $95 | $459 |
| 105MB | $85 | $399 |

## CONTROLLER

| | |
|---|---|
| 8-Bit Controller & Software | $59 |
| 16-Bit Controller & Software | $149 |

## EXTERNAL DRIVES



### 44MB

- EXTERNAL DRIVE
- 44MB CARTRIDGE
- STANDARD POWER CORD
- EXTERNAL CABLE
- INSTALLATION SOFTWARE (for Mac)
- PC Software included w/controller purchase

**$389**

### 88MB

- EXTERNAL DRIVE
- 88MB CARTRIDGE
- STANDARD POWER CORD
- EXTERNAL CABLE
- INSTALLATION SOFTWARE (for Mac)
- PC Software included w/controller purchase

**$459**

### 88MB C

- EXTERNAL DRIVE
- 88MB CARTRIDGE
- STANDARD POWER CORD
- EXTERNAL CABLE
- INSTALLATION SOFTWARE (for Mac)
  PC Software included w/controller purchase

**$489**

## 105MB, 3.5" DRIVE

### INTERNAL

- SQ3105
- 14ms SEEK TIME
- SCSI

**$429**

**105MB INT. IDE ............. $369**

## EXTERNAL 3.5" SCSI

- EXTERNAL SCSI DRIVE
- 105MB CARTRIDGE
- 14ms SEEK TIME
- STANDARD POWER CORD
- EXTERNAL CABLE
- INSTALLATION SOFTWARE (for Mac)

**$599**

# K-STOR™

## 250MB Removable Hard Drive

INTRODUCTORY PRICE

Kalok CORPORATION

NEW!

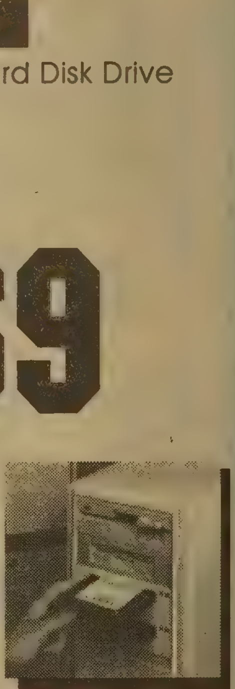
**FEATURES**

- IDE Docking station
- Drive Portability
- Drive Weight 10 oz.
- Data Security
- Transfer Rate up to 26 MBits/Sec
- 2-Yr Warranty

**COMPLETE KIT INCLUDES**

- 250MB Removable Hard Disk Drive
- Docking Module
- Carrying Case
- Software & Manual

**$369**



**Extra Docking Station**
**$49**

**Extra 250MB Drive**
w/Carrying Case & Software
**$319**

*Your Hard Drive & Multimedia Super Source*

**NCA Computer Products**

POs VISA MasterCard DISCOVER AMERICAN EXPRESS

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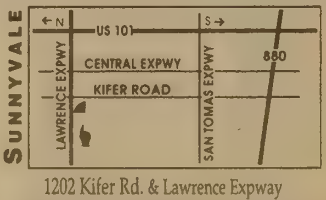

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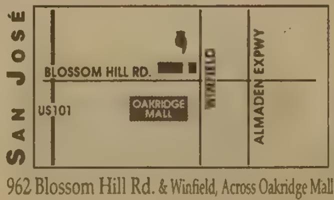

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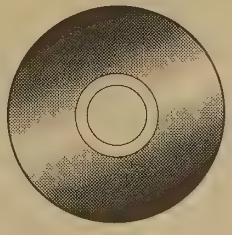
# CD ROM TITLES SUPER SALE

## CHOOSE FROM ANY OF THE FOLLOWING CD-TITLES FOR ONLY...

COMPACT disc



## $9.99

- **1001 Utilities**
- **Business Assistant**
- **California Collection**
- **Desktop Bookshop**
- **Game Arena**
- **Jokes & Pranks**
- **Learning Adventure**
- **Mother of All Clipart**
- **Original Shareware**
- **Phoenix Ver. 3.0**
- **Selectware**
- **VGA Spectrum**
- **Futura**
- **Let's Play**
- **Oldies but Goodies**
- **Variety Store**
- **Brain Drain**
- **Mirror Mirror**
- **Clipart Heaven**
- **Learning Heaven**
- **Shareware Heaven**
- **World Traveler**
- **Windoware**
- **Too Many Typefonts**
- **Technotools**
- **Sound Sensations**
- **Our Solar System**
- **Ham Radio**
- **Encyclopedia of Sound**
- **Complete Bookshop**
- **Clipart Goliath**
- **Dictionaries & Languages**
- **Deathstar Arcade Battles**
- **Bibles & Religion**
- **Gardening**
- **Computer Reference Library**
- **Straight from heaven**
- **Cookbook heaven**
- **Complete Home & Office Legal Guide**
- **American Business Phonebook 92"**
- **Super Games for Windows I**
- **Super Games for Windows II**
- **Super Games for DOS**
- **Super CD I**
- **Super CD II**
- **Super CD III**
- **Super Clipart**
- **Super Fonts**

- **Dr. Windows**
- **Dr. Games**
- **Dr. Shareware**
- **Dr. Music**
- **Simtel MSDOS**
- **CICIA MS Windows**
- **Hobbes OS/2**
- **Aminet Amiga**
- **Garbo MS-DOS/MAC**
- **Sprite OS**
- **QRZ! Ham Radio**

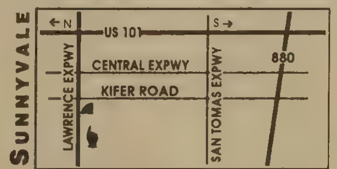
**$12.99**

- Over 50 new MAC CD-ROM titles.
- Over 200 CD-ROM Titles for PC in stock to choose from.

✓Entertainment, ✓Shareware, ✓Games, ✓Education, ✓Business, & ✓Adult Titles.

*Your Hard Drive & Multimedia Super Source*

**NCA Computer Products**



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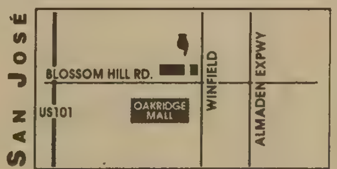

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# MULTIMEDIA SUPER SOURCE

## MEDIA VISION

### PRO 16 MULTIMEDIA SYSTEM II

- ▶ Includes Pro Audio Studio With Voice Recognition
- ▶ KARAOKE, Compton Int. Encyclopedia, Mayo Clinic Carmen San Diego, Civilization, Battle Chess, Mantis, Action

**$859**

### PRO AUDIO SPECTRUM 16

- ▶ True Stereo Sound
- ▶ Advance 20 Voice Stereo Synthesizer
- ▶ MIDI Interface
- ▶ 7-Software Titles bundle

**$159**

### EXTERNAL KIT FOR PRO AUDIO SPECTRUM 16

Conversion Kit to hook up an external SCSI CD ROM
• All Cables - Hardware & Software needed

**$49**

### PRO AUDIO STUDIO 16

- ▶ Above with voice Recognition
- ▶ Microphone & Software

**$199**

### PRO MOVIESTUDIO

- ▶ Real Time Video Capture / Real time Compression
- ▶ Supports NTSC/PAL/SECAM Comosite and S-Video

**$329**

### SUBSYSTEM CDPC XL

Fully Integrated Multimedia Component System

- ▶ External NEC Multispeed, 280ms, 300Kb/sec100W Power
- ▶ Amplifier, 20W per side & 60W of Power with
- ▶ Multimedia Source Analog Mixer
- ▶ MIDI Interface
- ▶ 4-Operator FM Synthesis
- ▶ Microphone
- ▶ Top CD-ROM Software Bundle

**$1069**

**SUBSYSTEM CD PC . . $929**

### FUSION CD16

- ▶ ProAudio Spectrum 16
- ▶ Labtec CS-550 Speakers
- ▶ Sony CD-ROM (Int) NEC CD-ROM (Ext)
- ▶ Best Selection Software

**INTERNAL ..$469**
**EXTERNAL ..$479**

### FUSION DOUBLE CD 16

- ▶ Internal NEC Double Speed 300KB/SEC
- ▶ Includes 7th Guest Software
- ▶ ProAudio Spectrum 16

**$589**

### PROMOVIE SPECTRUM

- ▶ Display Live Video In a Movable Window *up to 30 frames per second*
- ▶ Capture Video Sequence
- ▶ Control Video Sources With Your Keyboard or Mouse
- ▶ No Hardware limitations
- ▶ S-Video & NTSC Inputs & Editing
- ▶ Software Bundle

**$269**

| | |
|---|---|
| **PORTABLE PC SOUND AUDIOPORT** | **$129** |
| **MIDI MATE (EXTERNAL MIDI CONNECTOR BOX)** | **$49** |

## CREATIVE
CREATIVE LABS, INC

### OMNI CD
UPGRADE KIT

- ▶ CD-ROM:
  Double Speed 300KB/Sec
  350ms
  Multisession
  MPC
- ▶ Bundled Software
  Aldus PhotoStyler &
  Photo CD Access
  Quick CD, Audio Player
- ▶ Interface Card
- ▶ All Cables

**$289**

### SOUND BLASTER EDUTAINMENT 16 CD UPGRADE KIT

- ▶ Sound Blaster 16
- ▶ 390ms CD-ROM
- ▶ Multimedia Encyclopedia, Animals, San Diego Deluxe, Just Grandma & Me, Sherlock Holmes, Monkey Island, Secret Weapons & loom.
- ▶ Speakers

**INTERNAL..........$489**

### SOUND BLASTER DISCOVERY 8 CD UPGRADE KIT

- ▶ Sound Blaster
- ▶ 390ms CD-ROM
- ▶ Multimedia Encyclopedia, Animals, & lemmings

**INTERNAL..........$369**

Sound BLASTER

### SOUND BLASTER 16 BASIC

- ▶ 16-Bit Sound Card
- ▶ 4 Software Bundle

**$129**

| | |
|---|---|
| Sound Blaster Deluxe | $69 |
| Sound Blaster Pro Deluxe | $109 |
| Sound Blaster 16 /16ASP | $169/$199 |
| **Video Blaster** | $309 |
| **Wave Blaster** | $179 |
| **Video Spigot Windows** | $329 |

## AUDIO/VIDEO CARDS

ORCHID

### SOUND PRODUCER PRO

- ▶ Speakers & Microphones
- ▶ 9 Software Packages

**$109**

### SOUND WAVE 32

- ▶ Advanced Wave Table / DSP 16-Bit Sound Card

**$229**

ViVà

| | |
|---|---|
| Maestro 16 | $169 |
| Maestro 16VR (voice Recognition) | $249 |

DIAMOND

### SONIC SOUND 16-BIT CD QUALITY SOUND CARD

- ▶ Digital Signal Processor with Wave Sample; 32 voice synthesis
- ▶ Hardware controlled voice recognition; standard SCSI CD ROM interface
- ▶ 3 Software Bundle

**$229**

AlTech

### AUDIOSHOW AUDIO & VIDEO

- ▶ VGA to PAL or NTSC; converts computer's output to TV or Video tape
- ▶ 16-Bit Stereo Audio with 4-Watt amplifier; CD Quality recording
- ▶ CD ROM interface. Joystick port, MIDI In/Out and built-in amplifier

**$379**

LOGITECH

### SOUND MAN 16

Advanced 20 Voice Stereo Synthesizer
16-Bit

**$99**

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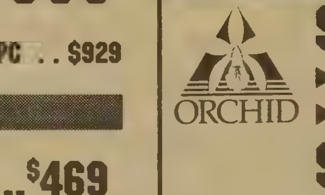

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# CD ROM SUPER SOURCE

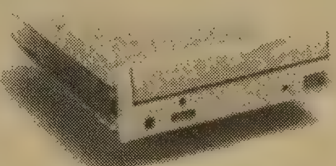
## TOSHIBA

**- XM-3401B -**

LOWEST NCA PRICES EVER

*Fastest SCSI CD ROM Ever!!*

- 200ms, 330KB/Sec
- SCSI CD-ROM
- Multi-Spin/Multi-Speed
- 256K Cache



INTERNAL **$365**

EXTERNAL **$499**

## CHINON

***Top of the line SCSI-II CD ROM***

**CD-535**

- SCSI-II CD ROM
- Multisession Photo CD
- XA Compatibles
- 256K Buffer
- 280ms
- Double Doors
- Sealed Mechanism

| INTERNAL UNIT | INTERNAL KIT<br>(with card & software) | EXTERNAL<br>(for MAC & IBM Comp.) |
|---|---|---|
| **$379** | **$419** | **$489** |

## Panasonic

Office Automation OA

### CR522 CD ROM & CARD

- Includes Audio Card & CABLES
- 380ms
- 64K Cache

**$195**

### CR562 CD ROM & CARD

- Includes Audio Card & Controller
- 320ms / 300KB/sec
- 64K Cache
- Double Speed /XA Comp.

**$249**

### CR532 SCSI CD ROM

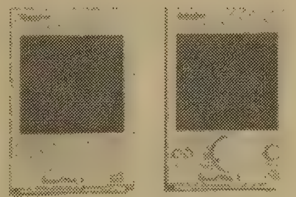
- SCSI CD ROM
- 290ms
- 128K Cache (up to 256K)

**$339**

## CD CADDY

**$5.99**

## SPEAKERS



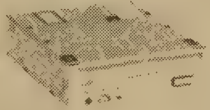
**Labtec**

| | |
|---|---|
| CS 150 Amplified Speakers | $18.99 |
| CS 180 2.5" 90 DEGREE PIVOT | $22.99 |
| CS 550 Amplified Speakers | $27.99 |
| CS1000 Under Monitor 5watt | $89.99 |

**ALTEC LANSING**

| | |
|---|---|
| ACS50 Mini satellite | $74.99 |
| ACS100 Satellite, DSP circuitry | $129.99 |
| ACS300 Multipath acoustic chamber | $279.99 |

## SONY



**31A CD ROM**
- CONTROLLER CARD
- Cables and Software

**$149**

**561 SCSI CD ROM**
- Double Speed
- 285ms /300Kb/Sec
- 256K Cache

**$369**

## NEC

*Next Generation SCSI fast CD ROMs*

- MultiSpeed
- MultiSpin
- MultiSession
- Higher Performance

**CDR-84-1** INTERNAL **$379**

**EXTERNAL $529**

## ORCHID

### CDS-3110 CD-ROM

*Double Speed, MultiSession, Internal CD ROM*

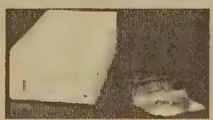
NEW!

- 300KB/Sec
- Includes Interface Card
- Data & Audio Cables
- Driver Software

**$269**

## PIONEER®

High Speed CD-ROM
MiniChanger, featuring
QUADRASPIN™, 612Kbyte/sec



- External SCSI/SCSI-2 Subsystem
- 6 CD ROM Magazine
- Software for MAC or IBM
- 300ms
- FAST 612KBytes/Sec

**DRM-604X**

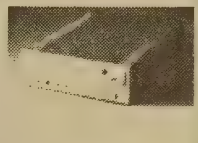
**$1199**

## AUDIO CABLES

For Most Popular CD-ROMs
& Sound Cards

**$5.99**

## TEAC



CD-50
SCSI-II Fast CD ROMs

**$309**

- DUAL SPEED
- 265ms / 335Kb/sec
- Multi session photo CD
- Anti-dust Construction
- Caddy & Manual

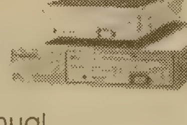
EXTERNAL **$419**

## TEXEL

*Double Speed Plus*

*New Model* **3028**

NEW!



- SCSI-II CD
- *FAST* 240ms
- Multi-Speed
- Caddy & Manual

**$369**

- DM-5028
- External W/Caddy

**$469**

*Trantor T130 Controller with SCSI works..............$79*

## MicroSolutions

*Computer Products*

**backpack**
***CD-ROM drive***

**Parallel Port**
**External CD-ROM Drive**

- 128K Cache
- 350ms
- MultiSession Photo CD
- Ideal for Notebooks
- Device Drivers

**$369**

## MITSUMI

- MULTIMEDIA CD ROM 350ms.
- INCLUDES 16 BIT CARD
- MPC READY / 350ms

**$149**

*Your Hard Drive & Multimedia Super Source*

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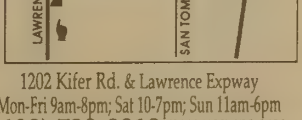

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# VIDEO SUPER SOURCE

## MONITORS

### ViewSonic®

*State of the Art*

*The New Generation*

| | |
|---|---|
| **ViewSonic-15 15" .28dpi** <br> ViewMatch Color Monitor, 1280X1024, Non-Interlaced 76Hz at 1024X768, Flat Screen | $489 |
| **ViewSonic-17 17" .28dpi** <br> 76Hz at 1280X1024, Flat Square Screen | $1029 |
| **ViewSonic-20 20" .28dpi** <br> 1600X1280, Non-Interlaced, Dual Page Display | $1635 |
| **ViewSonic-21 21"** | $1895 |

### U-SYNC 14" NON-INT. SVGA

.28 dpi 1024X768@72Hz..................... $259

### MiTAC

Affordable Quality Monitors

| | |
|---|---|
| **14" SVGA Non-Interlaced** <br> 1024X768, .28dpi | $259 |
| **15" SVGA Non-Interlaced** <br> 1280X1024, .28dpi, flat screen | $369 |
| **15" SVGA Non-Interlaced** <br> 1280X1024, VIEW MAGIC DIGITAL CONTROL | $399 |

### MGC

| | |
|---|---|
| **14" SVGA 1024X768 Non-Interlaced** <br> XGA High-Frequency, .28dpi | $299 |
| **15" SVGA Flat Screen Non-Interlaced** <br> XGA High Frequency, .28dpi, up 1280X1024 Non-Internal | $389 |
| **14" SVGA Black 1024X768** | $289 |

### SONY

| | | |
|---|---|---|
| CPD 1430 | 14" SVGA .25dpi | $549 |
| CPD 1730 | 17" SVGA .25dpi | $999 |
| GDM2038 | 20" State-of-the-art | $2294 |

### NEC

| | | |
|---|---|---|
| 3FGe | 15" 1024X768@60Hz | $579 |
| 4FGe | 15" 1024X768@76Hz | $689 |
| 5FGe | 17" 1024X768@76Hz | $1079 |
| 5FG | 17" 1280X1024@74Hz | $1449 |
| 6FG | 21" 1280X1024@74Hz | $2399 |

### SAMSUNG Electronics

*High Quality Monitors for Less*

| | |
|---|---|
| **SyncMaster-15C 15" MultiSync** <br> .28dpi, Flicker-Free, Microprocessor Controls flat screen 1024X768 non-interlaced | $454 |
| **SyncMaster-5 17" MultiSync High-freq.** <br> .28dpi, 1024X768, Non-Interlaced | $799 |
| **SyncMaster-5+ 17" 1280X1024** <br> .26dpi, Flicker-Free, MultiSync | $895 |

### NANAO®

PROFESSIONAL VIDEO DISPLAY

| | |
|---|---|
| F340iw 15" Non-Int. flat screen | $659 |
| F550i 17" Non-Int. 1280X1024, .28dpi | $999 |
| F550iw 17" Non-Int. 1280X1024, .28dpi | $1059 |
| T560i 17" Non-Int. 1280X1024, .25dpi | $1629 |
| T660i 20" Trinitron Tube 1280X1024, .28dpi | $2379 |
| T750i 21" Non-Int. 1280X1024, .32dpi | $2019 |
| F760i 21" 1280X1024@74Hz, .31dpi | $2095 |

## VIDEO CARDS

### American Megatrends

**Fast View VLB**

2 MB VRAM
Windows
Accelerator Card

$359

### SPiDER® Graphics, Inc.

**SPiDER Windows Accelerator**

**16.7Million Colors**

**SPiDER 32VLB**

- VESA Local Bus
- 1280X1024 in 256 Colors
- 1024X768 @ 72Hz

1MB DRAM $95

2MB DRAM $139

**SPiDER 32VLB PRO**

- Above Card with 20% Faster Acceleration

1MB DRAM $119

2MB DRAM $169

**BLACK WiDOW**

- VESA Local Bus
- XGA Graphics Engine
- Fast VRAM - 32-Bit OS/2 2.1 Drive Support up to 100Hz Refresh rate

1MB VRAM $209

2MB VRAM $265

## VIDEO CARDS

### Number Nine Computer Corporation

*Excellence in PC Graphics*

**9GXe World's Fastest Graphics Accelerator Engine 86C928 Chip Based**

| | |
|---|---|
| 9GXe Level 10 ISA 1MB VRAM | $259 |
| 9GXe Level 11 ISA or VESA 2MB VRAM | $359 |
| 9GXe Level 12 ISA or VESA 3MB VRAM | $429 |

**9GXi Graphics Powerhouse Bases on Ti TMS 34020**

| | |
|---|---|
| 9GXi Lite Level 20 1MB VRAM | $539 |
| 9GXi Lite Level 21 1MB VRAM /1MB DRAM | $699 |
| 9GXi Level 23 ISA or MCA 1MB VRAM/1MBDRAM | $999 |
| 9GXi Level 25 ISA or MCA 2MB VRAM/1MB DRAM | $1269 |
| 9GXi Level 29 4MB VRAM 1MB DRAM | $1449 |
| 15-Pin To 5BNC Monitor Cable | $89 |

### ATi TECHNOLOGIES INC.

**Graphic Ultra+**

Windows Accelerator MACH32
16.7 Million Colors

1MB DRAM $209

2MB DRAM $239

With ATi Bus Mouse add $29

**Graphic Ultra Pro**

- Accellerated 1024X768 at 256 Colors, up to 74Hz, Non-Interlaced

1MB VRAM $249

2MB VRAM $339

With ATi Bus Mouse add $29

**Graphics Ultra Pro 2MB EISA** ..... $379

**Graphics Ultra Pro VLB**

**VESA Local Bus** *Mach 32*

1MB VRAM $269

2MB VRAM $339

### DIAMOND

| | |
|---|---|
| Stealth Pro 1MB/2MB ISA | $249/$349 |
| Stealth Pro 1MB/2MB VLB | $259/$339 |
| SpeedStar Pro VESA or ISA | $139^99 |
| Stealth 24 VESA or ISA 1280X1024 | $159^99 |
| Viper VLB 2MB VRAM Accelerator | $369^99 |

### ORCHID

High End Video Solutions

| | |
|---|---|
| Celsius 1MB VRAM/2mb | $229/$289 |
| Fahrenheit 1280 Plus 1MB | $154 |
| Fahrenheit 1280 Plus VLB 1M/2M | $169/$199 |
| Fahrenheit VA or VA/VLB 1M/2M | $179/209 |

### SVGA VIDEO CARDS

| | |
|---|---|
| SVGA 256K Video Card | $29^99 |
| SVGA 512K 1024X768 | $44^99 |
| SVGA 1024K 1024X768 | $59^99 |
| SVGA VESA Local Bus | $79^99 |

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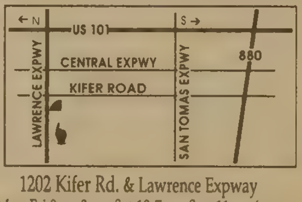

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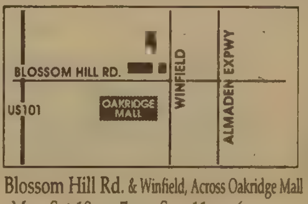

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# MEMORY

# MOTHERBOARDS

## MEMORY SIMMS

### IBM COMPATIBLE

| | | | |
|---|---|---|---|
| 256X9 | 80ns | 3Chip | $Call |
| 1MBX9 | 80ns | 3Chip | $Call |
| 1MBX9 | 80ns | 9Chip | $Call |
| 1MBX9 | 70ns | 3Chip | $Call |
| 1MBX9 | 70ns | 9Chip | $Call |
| 1MBX9 | 60ns | 3Chip | $Call |
| 1MBX9 | 60ns | 9Chip | $Call |
| 4MBX9 | 80ns | 9Chip | $Call |
| 4MBX9 | 70ns | 9Chip | $Call |
| 4MBX9 | 60ns | 9Chip | $Call |
| 16MBX9 | 70ns | 9Chip | $Call |

### DIPPS

| | |
|---|---|
| 256X1 100ns | $1.79 |
| 256X1 80ns | $1.59 |
| 256X1 70ns | $1.89 |
| ***256X4 70ns*** | ***$4.89*** |
| 64X4 100ns | $3.39 |
| 64X4 80ns | $2.29 |
| 1X4 80ns | $16.99 |
| 1MBX1 100ns | $3.75 |
| 1MBX1 80ns | $3.39 |
| 1MBX1 70ns | $4.29 |
| 1MBX1 60ns | $4.39 |

### CACHE MEMORY

| | |
|---|---|
| 32X8-25 | $6.50 |
| 32X8-20 | $8.50 |
| 32X8-15 | $17.00 |
| 32X8-12 | $39.00 |
| 64X4-25 | $8.50 |
| 64X4-20 | $9.00 |
| 64X4-15 | $18.00 |
| 64X1-20 | $5.75 |
| 64X1-15 | $6.75 |
| 8X8-25 | $3.75 |
| 8X8-20 | $3.25 |
| 8X8-15 | $4.75 |
| 16X4-20 | $6.25 |
| 16X4-25 | $4.75 |
| 16X4-15 | $8.25 |
| 128X8-25 | $41.50 |
| 128X8-20 | $CALL |
| 128X8-15 | $CALL |

### MEMORY SIPPS

| | |
|---|---|
| 1X9/70 | $Call |
| 1X9/60 | $Call |

### INTEL CPUs

| | |
|---|---|
| 486DX-33MHz | $Call |
| 486DX-50MHz | $Call |
| 486DX/2-50MHz | $Call |
| 486DX/2-66MHz | $Call |

### LASER PRINTER MEMORY

**HP laser Jet 4 & 4M** HEWLETT PACKARD

| | |
|---|---|
| 4MB | $Call |
| 8MB | $Call |

**HP Laser Jet IIP, III, IIID**

| | |
|---|---|
| 2MB Board (up to 4MB) | $Call |
| 4MB Board | $Call |

**HP IIIsi**

| | |
|---|---|
| 4MB Module | $Call |
| 8MB Module | $Call |

**OTHER LASER PRINTERS**

PANASONIC P4410/4430 Printers
Compaq Page MRQ Printers
EPSON Action II Printers
OKI 400 Printers & NEC Printers

### Macintosh

| | | | |
|---|---|---|---|
| 1MBX8 | 80ns | 2Chip | $Call |
| 1MBX8 | 80ns | 8Chip | $Call |
| 1MBX8 | 70ns | 2Chip | $Call |
| 1MBX8 | 70ns | 8Chip | $Call |
| 2MBX8 | 80ns | 2Chip | $Call |
| 4MBX8 | 80ns | 8Chip | $Call |
| 4MBX8 | 70ns | 8Chip | $Call |
| 4MBX8 | 60ns | 8Chip | $Call |
| 4MBX8 | 80ns | II-FX | $Call |
| 16MBX8 | 70ns | 8Chip | $Call |

### 32-BIT FOR QUADRA 800, CENTRIS, & LCIII

| | |
|---|---|
| 2MB Module | $Call |
| 4MB Module | $Call |
| 8MB Module | $Call |
| 16MB Module | $Call |

### MAC MEMORY INSTALLATION

**2-Hr Installation** **$15**
(excluding Powerbooks)

### POWERBOOK MEMORY

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|---|---|
| 6MB Module **(160/180)** | $CALL |
| 8MB Module **(160/180)** | $CALL |
| 10MB Module **(160/180)** | $CALL |
| 6MB Modules **(140/145/170)** | $CALL |

### 72-PIN SIMMS

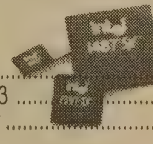
| | |
|---|---|
| 2MB 604-70ns | $CALL |
| 4MB 1X36-70ns | $CALL |
| 8MB 2X36-70ns | $CALL |
| 16MB 4X36 70ns | $CALL |

### MATH CO-PROCESSORS

**CHIPS AND TECHNOLOGIES**

*Co-processor for*
386-DX16, 20, 25, & 33MHz **$59**

**intel.**



| | |
|---|---|
| 80387SX-16, 20, 25 | $79 |
| 80387DX-16, 20,25,33 | $79 |
| Overdrive Processor | $Call |

**IIT** INTEGRATED INFORMATION TECHNOLOGY

| | |
|---|---|
| 3C87SX-16, 20, 25 | $69 |
| 3C87SX-33 | $79 |
| 3C87-20, 25, 33 | $79 |
| 3C87-40 | $79 |

**Cyrix.**

| | |
|---|---|
| 83S87SX-16, 20, 25 | $69 |
| 83S87SX-33 | $79 |
| 83D87-16, 20, 25, 33 | $79 |
| 83D87-40 | $89 |

***WEITEK***

| | |
|---|---|
| 4167-25 | $359 |
| 4167-33 W/Manual & SW | $629 |

## MOTHERBOARDS

### DIAMOND

**486DX33 or DX2/66**

- ▶ VESA Local Bus
- ▶ ZIF Socket
- ▶ 256K Write-Back Cache
- ▶ 2 IDE / 2 Floppy / I/O on Board
- ▶ Up to 128MB on Board Using
- ▶ 72-Pin Simms

(NO CPU) **$249**

### MICRONICS

COMPUTERS INC.

| | |
|---|---|
| **486 DX33** VESA 256K (ZIF Socket) | **$649** |
| **486 DX33** EISA/VESA 256K | **$899** |
| **486 DX50** EISA 8 Slots, 256K | **$1049** |
| **486DX/2-66** VESA, ZIF Socket, 256K | **$Call** |
| **486** DX/2-66 EISA/VESA 256K | **$1299** |

### ORCHID MOTHERBOARDS

High Quality VESA Local Bus (no CPU)

| | |
|---|---|
| 486DX-33 VLB 256K Cache | $189.99 |
| 486DX-50 VLB 256K Cache | $199.99 |
| 486DX-66 VLB 256K Cache | $189.99 |

### Alaris

**Manufactured By IBM**
**3 Year Warranty**

- ▶ VESA Local Bus
- ▶ **128K Cache**
- ▶ **Includes Co-Processors**
- ▶ 16K Internal Cache

| | |
|---|---|
| **486SLC2-50,** 19.8mips | **$339** |
| **486SLC2-66,** 26.2mips | **$399** |

*NCA's Super Quality Boards*

### Elite UM 486V

**VESA - Local Bus Motherboard**

- ▶ 8 16-Bit Slots INCLUDES 2 32-Bit VESA Slots
- ▶ 256K Cache
- ▶ ZIF 238-pin Socket (Pentuim over drive ready)
- ▶ UMC Chip Set
- ▶ AMI BIOS
- ▶ Jumper Adjustable speed

| | |
|---|---|
| **486DX-33** | **$489** |
| **486DX-50** | **$609** |
| **486DX/2-50** | **$589** |
| **486DX/2-66** | **$699** |

### American Megatrends

### Super Voyager VLB-II

- ▶ 2 VESA Local Bus Slots
- ▶ 7 ISA Slots
- ▶ ZIF CPU Expansion
- ▶ On Board I/O
- ▶ Up to 64MB on Board RAM
- ▶ 256K Cache

| | |
|---|---|
| **486DX33** VESA 256K | **$699** |
| **486DX50** VESA 256K | **$899** |
| **486DX/2-66** VESA 256K | **$979** |

### Enterprise III

- ▶ Eight EISA Bus Slots
- ▶ Buffered VESA Local Bus
- ▶ 256MB DRAM Support
- ▶ ZIF Expansion Sockets
- ▶ 256K Cache

| | |
|---|---|
| **486DX33MHz** | **$869** |
| **486DX50MHz** | **$1069** |
| **486DX2/66MHz** | **$1099** |

### Enterprise IV

- ▶ Seven EISA Bus Slots
- ▶ Two VESA Local Bus
- ▶ ZIF Expansion Sockets
- ▶ On Board I/O

| | |
|---|---|
| **486DX33MHz** | **$939** |
| **486DX50MHz** | **$1129** |
| **486DX2/66MHz** | **$1179** |

### *AMIDiag 4.0*

Diagnostic Package to Manufacturing Field Engineers and Endusers
Sold with AMI boards only **$49.99**

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|---|---|
| 386SX-33MHz | $149 |
| 386DX-40MHz w/CPU, 64K Cache | $149 |
| 386DX-40MHz w/CPU, 128K Cache | $159 |
| 386DX-40MHz w/CPU, 256K Cache | $169 |
| 486DLC/40 Cyrix | $229 |
| 486DLC/40 w/Co-Pro Cyrix | $269 |

### 486 EISA/VLB

- ▶ 3-EISA - Slots
- ▶ 2-VESA - Slots
- ▶ 3 16-Bit ISA Slots
- ▶ Hint Chip Set

**$239**

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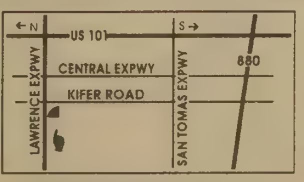

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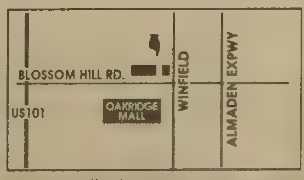

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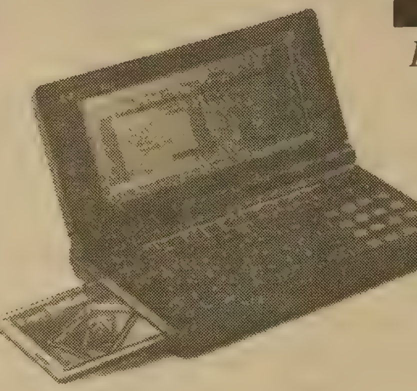
# PCMCIA SUPER SOURCE



# FlashCard

*PCMCIA Mass Storage For Mobile Computers*

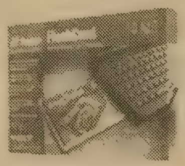
Seagate

SunDisk

The Solid Advantage

**HEWLETT PACKARD**

## ☐HP 95LX



Kit Includes:
FlashCard, Communication Cable, Software Drivers

| | |
|---|---|
| 2.6MB FlashCard Kit | $399 |
| 5.2MB FlashCard Kit | $499 |
| 10.4MB FlashCard Kit | $749 |

## NCR
## 3170 Safari

Kit Includes:
FlashCard & Software Drivers

| | |
|---|---|
| 2.6MB FlashCard Kit | $339 |
| 5.2MB FlashCard Kit | $419 |
| 10.4MB FlashCard Kit | $649 |
| 20MB FlashCard Kit | $1199 |

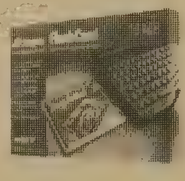
**HEWLETT PACKARD**

## ☐HP 100LX
## ☐OmniBook

FlashCard Only: No Software Needed

| | |
|---|---|
| 2.6MB FlashCard | $339 |
| 5.2MB FlashCard | $419 |
| 10.4MB FlashCard | $649 |
| 20MB FlashCard | $1199 |

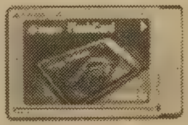
## GRiD
## ☐Convertible 386
## ☐Convertible 486



Kit Includes:
FlashCard & Software Drivers

| | |
|---|---|
| 2.6MB FlashCard Kit | $399 |
| 5.2MB FlashCard Kit | $499 |
| 10.4MB FlashCard Kit | $749 |

## eO, Inc.
## ☐ Personal Communication 440 & 880



FlashCard Only: No Software Needed

| | |
|---|---|
| 2.6MB FlashCard | $339 |
| 5.2MB FlashCard | $419 |
| 10.4MB FlashCard | $649 |
| 20MB FlashCard | $1199 |

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## Fax/modem For PCMCIA Type 2.0

**With QuickLink II Software**

- ▶ 9600bps Send Fax
- ▶ 4800bps Receive Fax
- ▶ 2400bps Data

$179

TESTED WITH Acer (Anywhere V386SL), AST (PowerExec 3/25SL), AST (PowerExec ColorPlus 4/25SL), Data General (Walkabout 386SL), Dauphin (5000 Series), Dell (320SLi), GRiD (Convertible), Hynndai (Couries), NCR (3170 Safari), PC&C Research (SLiC 4000), Sharp (PC-6700 Series & PC-6800 Series), Toshiba (T3300SL, T4500, T4500C), & Zenith (z-Lite 320L)

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ACE Technologies, Inc.

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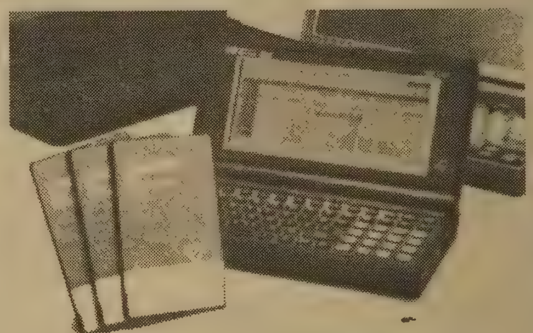
PCMCIA RAM memory card With built-in Data Compression

## for HP 95LX & 100LX

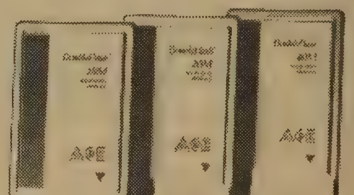


- Auto-mounting
- Password protection
- Available in 1MB, 2MB, 4MB, & 8MB
- FREE DoubleRAM utility doubles your Palmtop's internal RAM disk!
- DoubleCards are all preformatted for simple installation
- Lifetime Warranty

| | |
|---|---|
| DoubleCard 1M (up to 1MB) A2001 | $119 |
| DoubleCard 2M (up to 2MB) A2002 | $189 |
| DoubleCard 3M (up to 3MB) A2004 | $299 |

## DoubleFlash™

Solid State Storage Solutions for Portable Computers. Built-in Data Compression



| | |
|---|---|
| DoubleFlash 10M (up to 10MB) A3010 | $499 |
| DoubleFlash 20M (up to 20MB) A3020 | $759 |
| DoubleFlash 40M (up to 40MB) A3040 | $1249 |

*(for HP 100LX only)*

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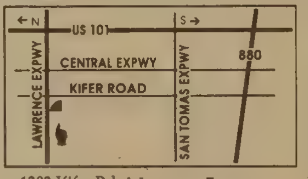

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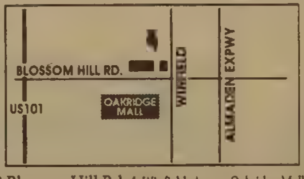

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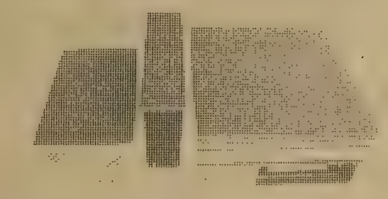
# ACCESSORIES SUPER SOURCE

## CASES

### EXTERNAL SCSI DRIVE CASES



- ▶ High Quality Metal Cases
- ▶ 2 Centronics Output
- ▶ Noise-Free Fan
- ▶ External SCSI ID Switch
- ▶ External SCSI Cable (50C-50C or 50C-25C)
- ▶ Power Cable
- ▶ Hardware

| | |
|---|---|
| **For 3.5" or 5.25" Half Height** | **$99** |
| **For Full Height or 2 HH (NCA)** | **$199** |
| **For 2 Full Height 200W with 5-fans** | **$279** |
| **For 4 Full Height With Panel** | **$499** |

### POWER SUPPLIES

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|---|---|
| 250Watt UL approved AT | $49 |
| 250Watt UL for Tower | $49 |
| 400Watt UL for Tower | $179 |

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American Power Conversion

*UNINTEREPTED POWER SUPPLY*

### COMPUTER CASES

- ▶ HIGH QUALITY CASES
- ▶ UL APPROVED POWER SUPPLY
- ▶ GREAT STYLE SELECTION

**NCA SERIES™**

| DESCRIPTION | PRICE |
|---|---|
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| MED-TOWER , 230W | $99.99 |
| FULL-TOWER , 250W | $139.99 |

**BETA SERIES™**

| DESCRIPTION | PRICE |
|---|---|
| MINI-TOWER , 230W | $49.99 |
| MED-TOWER , 230W | $79.99 |
| FULL-TOWER , 250W | $109.99 |

## POINTING DEVICES

LOGITECH

**MouseMan...... .....$\$65^{99}$**
Serial — MouseMan Bus Ver. ...$69.99

| NAME | PRICE |
|---|---|
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| TrackMan-II | $\$74^{99}$ |
| MOUSE-MAN Cordless | $\$84^{99}$ |
| KIDSMOUSE | $\$29^{99}$ |

| NAME | PRICE |
|---|---|
| SoundMan 16 | $\$99^{99}$ |
| ScanMan 256 with OCR | $\$199^{99}$ |
| ScanMan 32 | $\$99^{99}$ |

**Microsoft**

| NAME | PRICE |
|---|---|
| Microsoft Mouse OEM | $49 |
| Microsoft Mouse II OEM | $59 |

**QuickShot® by Bondwell**

**WARRIOR 5** DELUXE ANALOG JOYSTICK FOR IBM PC COMPATIBLE **$\$14^{99}$**

| | |
|---|---|
| **Smart Game Card 2-Game ports Selectable Speed** | $\$16^{99}$ |
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| SONY DC2120 120/250MB | 18.95 | 89.00 |
| 3M 2120F FORMATTED XMAT | 18.00 | 89.00 |
| MAXELL DC2120 UNFORMATTED | 16.99 | 79.00 |
| MAXELL DC2120 FORMATTED Q80 | 19.99 | 89.99 |
| **6000(1/4" TAPES)** | | |
| SONY DC6150 150MB | 22.95 | 107.50 |
| SONY DC6250 250MB | 28.95 | 137.50 |
| SONY DC6525 525MB | 33.95 | 155.50 |
| **DAT 4mm 90meters** | | |
| SONY 90M | 17.95 | 75.00 |
| TDK DC4-90 | 13.99 | 65.00 |
| **DAT 8mm 112meters** | | |
| EXABYTE UP TO 5.0GB TAPES | 18.00 | 89.00 |
| TDK DC8-112 | 9.99 | 45.00 |
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| SONY 2.88M DISKS | 10PACK ONLY $62.50 | |
| BULK 1.44M 3.5" FORMATTED | .68¢ | 25PACK $15.99 |
| BULK 1.2M 5.25" FORMATTED | .39¢ | 25PACK $9.99 |
| **REMOVABLE DISKS** | | |
| SYQUEST 44MB | $65.00 | $309 |
| SYQUEST 88MB | $99 | $489 |
| SYQUEST 105MB 3.5" | $99 | $489 |
| BERNOULLI | SEE pg. 9 | |
| RICOH 128MB | $49 | 239 |
| MAXEL 128MB OPTICAL | $42 | 199 |
| MAXOPTIX 1.0GB GLASS OR POLY | $199 | 979 |
| RICOH 650MB | $145 | $699 |

## CABLES

**HARD DRIVE EXTERNAL CABLES**

| DESCRIPTION | PRICE |
|---|---|
| CENTRONICS TO SCSI-II | $39.99 |
| CENTRONICS TO MAC 25-PIN | $7.99 |
| CENTRONICS 50 TO CENTRONICS 50, 6FT | $12.99 |
| CENTRONICS 50 TO CENTRONICS 50, 3FT | $9.99 |
| CENTRONICS TO DB-50 | $39.99 |
| DB-50 TO SCSI-II | $39.99 |
| DB-50 TO DB-50 | $39.99 |
| SCSI-II TO SCSI-II | $39.99 |

**HARD DRIVE INTERNAL CABLES**

| DESCRIPTION | PRICE |
|---|---|
| SCSI 50-PIN RIBBON 3 CONNECTOR | $5.99 |
| SCSI 50-PIN RIBBON 4 CONNECTOR | $9.99 |
| SCSI 50-PIN RIBBON 5 CONNECTOR | $12.99 |
| IDE 40-PIN RIBBON 3 CONNECTORS | $3.99 |
| FLOPPY & IDE CABLE SET | $5.99 |

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**KEYBOARDS**

| DESCRIPTION | PRICE |
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| MITSUMI High Quality Keyboard | $29.99 |
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| MAX STANDARD 101 KEY | $19.99 |
| ALPS SWITCH CLICK STYLE | $39.99 |

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| DESCRIPTION | PRICE |
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| FOCUS 2000 W/COVER | $42.99 |
| FOCUS 8000 with Calculator | $49.99 |
| FOCUS 9000 with Calculator / programmable | $69.99 |

**CPU COOLING FAN $\$9^{99}$**

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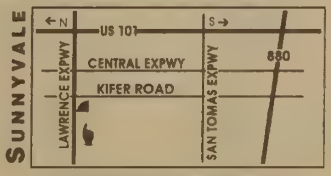

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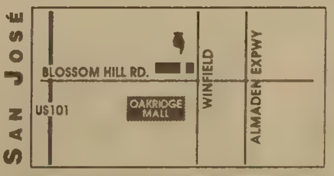

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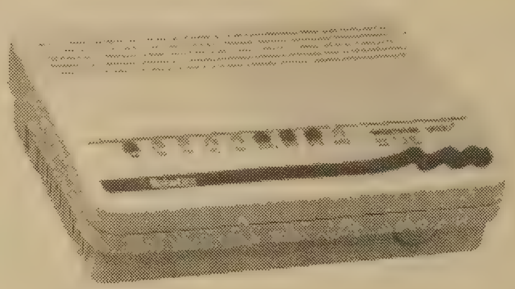
The Sierra Network



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**EXTERNAL** $185

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MADE IN AMERICA

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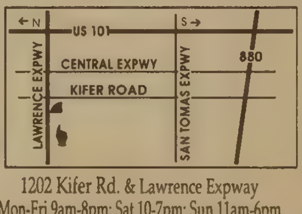

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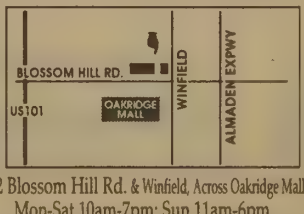

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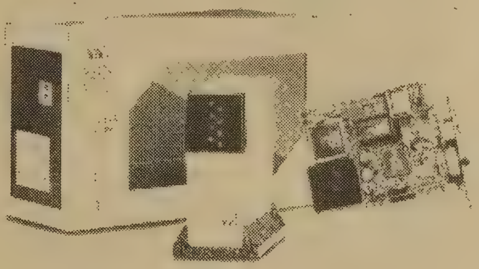

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**EXTERNAL**
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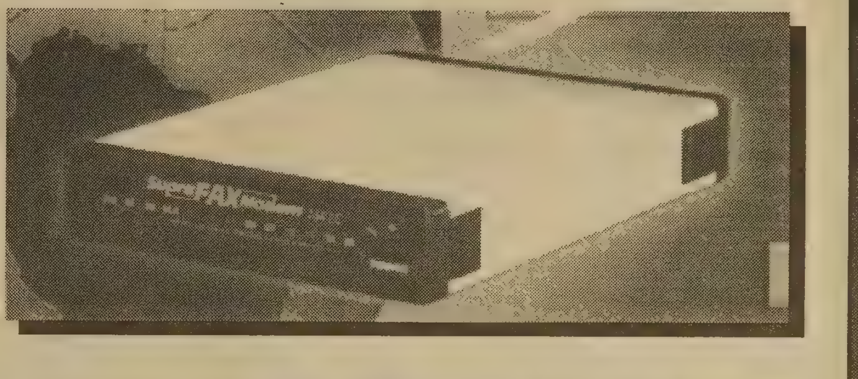

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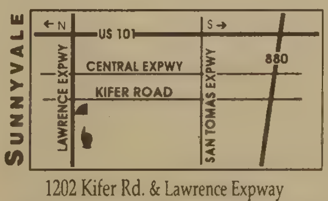

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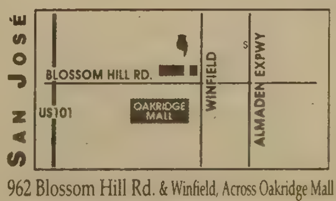

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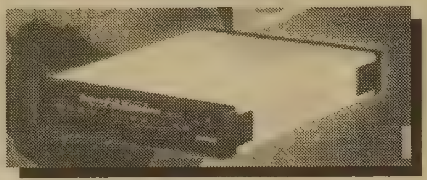
# Macintosh Peripherals

## External Fax/Modems for Macintosh

**SupraFAXModem**™



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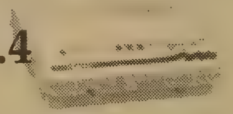

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Hard Disk ToolKit
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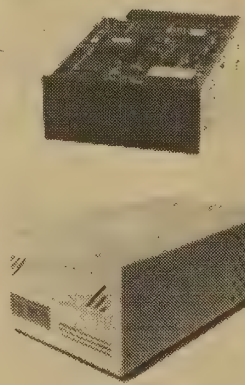

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85MB-24GB Array

See pages 4, 5, 6, 7, 8 for all listing On Int. & Ext. SCSI Drives

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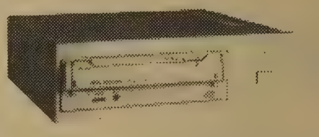

Includes FWB CD-ROM Drivers and Cables for MAC.

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| External Toshiba 3401B 200ms | $529 |
| External NEC 84-1, 280ms | $559 |
| External CHINON 535, 280ms | $499 |
| External TEAC CD50, 265ms | $459 |
| External TEXEL 5208, 240ms | $499 |
| External Pioneer 6CD | $1199 |

FWB incorporated

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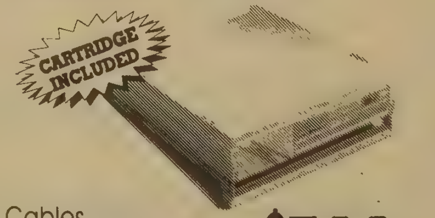

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| 88MB -C reads & writes to 44&88M | $489 |
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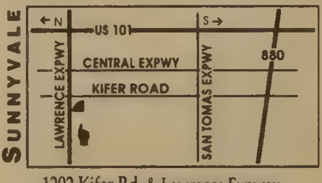

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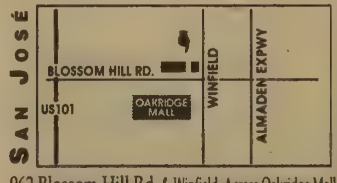

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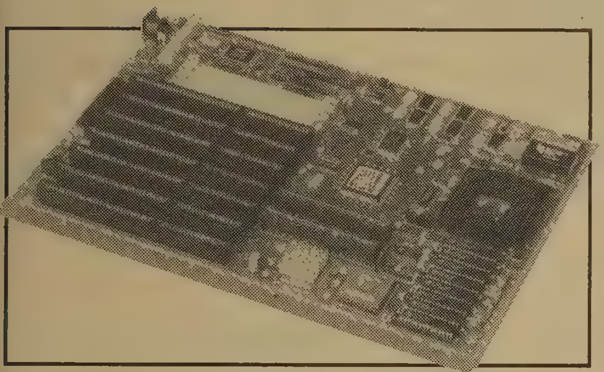
# PRODUCT SPOTLIGHT

# New Products

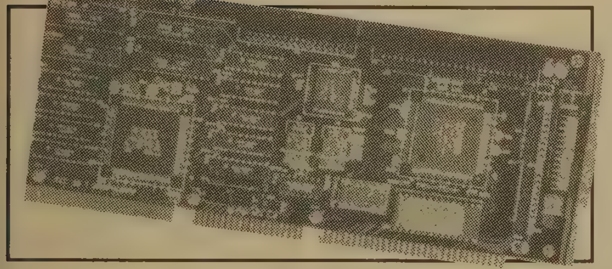
## PC HARDWARE

### ALARIS COUGAR BLUE LIGHTNING PC MOTHERBOARD



The Cougar motherboards are based on IBM's new Blue Lightning family of 486 compatible processors and offers an alternative to Intel 486- and Pentium-based products. Alaris designed the Cougar products in close cooperation with IBM to optimize the clock tripling performance of the Blue Lightning processors, in both the 25/75MHz and 33/100MHz versions. In addition, Blue Lightning features 16K of internal cache, twice the amount offered by Intel's 486 processor. It also conserves energy by operating at 3.6v, eliminating the potential for excess heat build-up. This reduction in overall power consumption can increase the reliability and life span of the product. (Cougar 25/75, $599) Alaris, Inc., 46704 Fremont Blvd., Fremont, CA 94538. (510)770-5700.

### FOREX FR600AF VL BUSMASTER



The FR600AF VL BusMaster is a 32-bit Bus Mastering VESA SCSI Host Adapter. Unique features integrated into the bus master adapter include the combination of the high-speed SRAM and board level protocol providing nearly 30% increase in Data Transfer Rate (DTR) at the same CPU speed, especially in CAD/CAM and UNIX environments. Offering auto adjusting, the Forex FR600AF allows a drive to be moved or reconnected to a new system without having to be reformatted each time. Also, it supports many drives including hard disk, CD-ROM, removable media storage peripherals, magneto-optical systems, WORM, tape, and DAT. True to the SCSI standard, this VESA adapter lets you work with up to seven daisy-chained storage devices. ($240) Forex Computer Corp., 2121 Ringwood Ave., San Jose, CA 95131. (408)955-9280.

## UPDATES

**Aldus** released **Aldus Fetch 1.2**, an upgrade to its multiuser, mixed-media database program for the Apple Macintosh. Registered owners of Fetch 1.0 can obtain the 1.2 upgrade for free. Aldus Corp., 411 First Ave. S, Seattle, WA 98104-2871. (206)398-8819.

**Baarns Consulting** announced **The Baarns Utilities 2.0 For Microsoft Excel**, which adds nine completely new utility programs and hundreds of modifications to the initial fourteen utilities. Several of the original utility programs have also been completely redesigned for added functionality. Baarns Consulting Group, Inc., 12807 Borden Ave., Sylmar, CA 91342. 1-800-377-9235.

**Intuit** announced **Quicken 3 for Windows**, which features, in addition to Quicken's traditional checkbook metaphor, a new user interface designed around a paper calendar. Upgrades are available directly from Intuit for $29.95 plus $5 shipping and handling. Current users can purchase Quicken 3 through retail outlets for a $10 in-box rebate. New users receive a $5 in-box rebate. Intuit Corp., PO Box 3014, Menlo Park, CA 94026-3014. 1-800-624-8742.

**Lotus** announced **Lotus cc:Mail Group Pack**, which combines their electronic mail system with the group scheduling version of Lotus Organizer personal information manager (PIM). cc:Mail Group Pack is an entry-level one-box messaging system for small businesses and workgroups in larger organizations. The suggested retail price is $845. Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142.

**Magic Software Enterprises** introduced **Magic 5.5**, the latest version of the company's rapid application development (RAD) tool for client/server host environments. Magic 5.5 supports concurrent, multiuser development and also features support for embedded structured query language (SQL). Magic Software Enterprises, 1200 Main St., Irvine, CA 92714. (714)250-1718.

**Magic Software Enterprises** also introduced new **MagicGate** database gateways for Oracle, Sybase, and Rdb relational database management systems (RDBMSs). Users of MagicGate can create Magic 5.5 applications that access a variety of data files, regardless of their structure or location in the computing environment, and access multiple data sources within the same application. Magic Software Enterprises, 1200 Main St., Irvine, CA 92714. (714)250-1718.

**NewGen** offers a **PCL5 upgrade** for its laser printers that extends their ability to work in office environments that require PCL5 and computer-aided design applications utilizing the HPGL/2 graphics/plotter language. The upgrade consists of a memory card that can be inserted into one of the built-in memory slots on NewGen printers and costs $199. NewGen Systems Corp., 17550 Newhope St., Fountain Valley, CA 92708. (714)641-8600.

**Powercore** released **Network Scheduler 3 v2**, which provides workgroups with a single source for calendaring/scheduling that is independent of computer platform, network operating system, and messaging system. Powercore Intl. Inc., P.O. Box 756, Manteno, IL 60950-0756. (800)237-4754.

**Shapeware** announced **Visio 2.0**, the latest version of its drag and drop drawing program for business professionals. Registered users of Visio 1.0 can upgrade to Visio 2.0 for $79. Shapeware Corp., 1601 Fifth Ave., Suite 800, Seattle, WA 98101-1625. 1-800-446-3335.

**Sybase** released **Gain Momentum 2.0**, an interactive information delivery system which combines the rich context of multimedia with the flexibility of client/server computing. The product consists of visual development tools; GEL, a forth generation language (4GL); an application/object store, and a suite of multimedia editors. Current Gain Momentum customers will receive the 2.0 version automatically under their maintenance agreements. Sybase, Inc., 6475 Christie Ave., Emeryville, CA 94608. (510)658-9441.

**TRUMATCH** released **ColorPrinter Software v3.0**, which includes support for color management technologies **Apple ColorSync** and **EfiColor** by Electronics for Imaging. TRUMATCH, Inc., 25 W 43rd St., Suite 802, New York, NY 10036. 1-800-878-9100.

**UniPress** announces **Microsoft LAN Manager v2.2 For Sun**, which will allow Sun workstations to act as servers for PC client applications on MS-DOS, Windows, Windows NT, Windows for Workgroups, and OS/2 platforms. UniPress Software, Inc., 2025 Lincoln Hwy., Edison, NJ 08817. (908)287-2100.

**WordPerfect** and **Borland** have bundled **WordPerfect 6.0 for Windows** with **Quattro Pro 5.0 Workgroup Edition** in specially marked packages. Current users of WordPerfect can upgrade to WordPerfect 6.0 for Windows with Quattro Pro 5.0 Workgroup Edition for $150. A competitive upgrade for this promotion is available for $170 from any DOS, Windows, or OS/2 word processor that has a retail price of at least $395. WordPerfect Corp., 1555 N. Technology Way, Orem, Utah 84057-2399. (801)225-5000.

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| 4M X 9-60 | 151 |
| 1M X 9-10 | 28 |
| 1M X 9-80 | 33 |
| 1M X 9-70 | 35 |
| 1M X 9-60 | 37 |
| 1M X 3-80 | 30 |
| 1M X 3-70 | 34 |
| 1M X 3-60 | 36 |
| 256 X 9-10 | 8 |
| 256 X 9-80 | 9 |
| 256 X 9-70 | 11 |
| 256 X 9-60 | 12 |

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| 1M X 8-10 | $28 |
| 1M X 8-80 | 31 |
| 1M X 8-70 | 33 |
| 4M X 8-80/70 | 119/124 |

| DRAM | |
|---|---|
| 1M X 1-80 | $3.70 |
| 1M X 1-70 | 3.80 |
| 1M X 1-60 | 3.90 |
| 1M X 4-80/70 | 17.00 |
| 256K X 1-80 | 1.65 |
| 256K X 1-70 | 1.80 |
| 256K X 1-60 | 1.95 |
| 256K X 4-80 | 3.95 |
| 256K X 4-70 | 4.15 |
| 256K X 4-60 | 4.30 |

| CPU'S | |
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| 486DXII-66 INTEL | $449 |
| 486DXII-50 INTEL | 339 |
| 486DX-50 INTEL | 399 |
| 486DX-33 INTEL | 259 |
| 486DX-25 INTEL | 219 |
| 486SX-25 INTEL | 89 |
| 486SX-33 INTEL | 169 |
| 386DX-33 INTEL | 49 |
| 386DX-40 AMD | 59 |
| 386DX-25 INTEL | 35 |
| 386DX-25 AMD | 33 |
| 386SX-25 INTEL/AMD | 30 |
| 386SX-20 INTEL | 25 |
| 386SX-16 INTEL | 20 |
| 386DX-20 INTEL | 25 |

| EPROMS | |
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| 27C20-15NS | $7.50 |
| 27C10-15NS | 5.50 |
| 27C040-15NS | 12.50 |
| 5104402-80 (1X4) SST,ZIPP | 21 |
| 5104400-80 (1X4) ZIPP | 19 |
| 5104400-80 (1X4) DIPP | 21 |
| 5104400-80 (1X4) SOJ | 16 |
| 5104400-80 (4X1) SOJ | 15 |

| MOTHERBOARD W/0 CPU | |
|---|---|
| 486DX-50 W/256K CACHE | $125 |
| 486DX-33 W/64K CACHE | 117 |
| 386DX-40 W/64K CACHE | 95 |
| 386DX-33 W/64K CACHE | 91 |
| 386SX-16 W/CPU | 89 |
| 386SX-25 W/CPU | 105 |
| 386SX-33 W/CPU | 159 |

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| | 200MB IDE | 289 |
| | 240MB IDE | 309 |
| | 520MB IDE | 759 |
| MAXTOR | 80MB IDE | 199 |
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| | 660MB | CALL |
| QUANTUM | 52MB IDE | 149 |
| | 120MB IDE | 185 |
| | 240MB IDE | 279 |
| SEAGATE | 40MB IDE | 129 |
| | 105MB IDE | 189 |
| | 130MB IDE | 199 |
| | 200MB IDE | 325 |
| CDC | 91.5MB SCSI | 199 |
| FUJITSU | 540MB IDE | 749 |

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| 32X8-20 | 5.00 |
| 32X8-15 | 5.50 |
| 64X4-20 | 5.75 |
| 64X4-25 | 6.75 |
| 64X4-15 | 9.80 |
| 64X1-20 | 6.50 |
| 64X1-15 | 6.50 |

| 72 PIN SIMMS | |
|---|---|
| 2MB 604-80ns | $79 |
| 4MB 1X36-80ns | 165 |
| 4MB 1X36-70ns | 359 |
| 8MB 2X36-70ns | 379 |
| 16MB 4X36-70ns | 639 |
| 16MB 4X32-70ns | 549 |

| MATH CO'S | |
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| 387DX 16-33 INTEL | $72 |
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| 387DX 33,25,20 CYRIX | 69 |
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| 486SLC2-66C VLB | 319 | 479 | 669 | 719 | 799 | 849 | 859 | 909 |
| 486DLC-40C VLB<br>87DLC40 Inc'd & Upgradable | 219 | 379 | 569 | 619 | 699 | 749 | 759 | 809 |
| 486DLC-33C VLB | 189 | 349 | 539 | 589 | 669 | 719 | 729 | 779 |
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| 486DX2-50C EISA | 439 | 599 | 789 | 839 | 919 | 969 | 979 | 1,029 |
| 486DX-33C EISA | 379 | 539 | 729 | 779 | 859 | 909 | 919 | 969 |
| 486DX2-66C ISA | 469 | 629 | 819 | 859 | 939 | 989 | 999 | 1,049 |
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| 486SX-33C ISA | 166 | 326 | 516 | 566 | 646 | 696 | 706 | 756 |
| 486SX-25C ISA | 136 | 296 | 486 | 536 | 616 | 666 | 676 | 726 |
| 486DLC-40C ISA | 189 | 349 | 539 | 589 | 669 | 719 | 729 | 779 |
| 486DLC-33C ISA<br>87DLC33Inc'd & Upgradable | 159 | 319 | 509 | 559 | 639 | 689 | 699 | 749 |
| 486SLC-40C ISA | 139 | 299 | 489 | 539 | 619 | 669 | 679 | 729 |
| 486SLC-33C ISA | 119 | 279 | 469 | 519 | 599 | 649 | 659 | 709 |
| 386DX-40 ISA | 99 | 259 | 449 | 499 | 579 | 623 | 633 | 683 |
| 386SX-40 ISA | 76 | 236 | 426 | 476 | 556 | 606 | 616 | 666 |
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| 14", 214MH, .28, 1024 NI, 49KHz/100Hz | 259 |
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| 17", 217AHL, .26, 1280 Int., FS, LR, Autoscan | 736 |
| ***CTX*** | |
| 14", 5468, .28, 1024 Int., 38KHz/90Hz | 249 |
| 14", 5468NI, .28, 1024 NI, 50KHz/90Hz | 269 |
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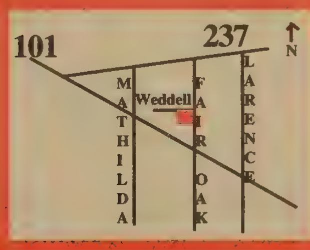

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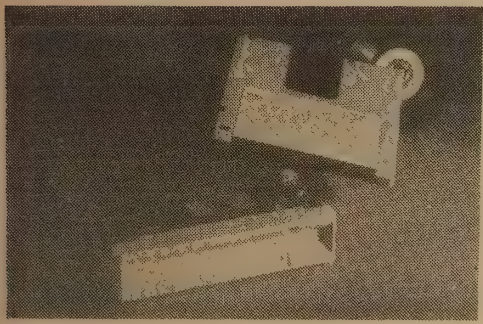

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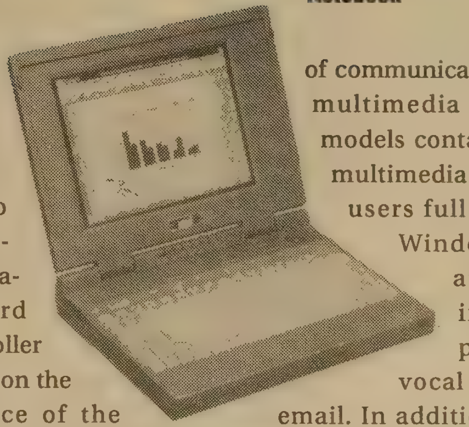

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| 1x1-80 | $6.99 |
| 1x1-70 | 6.99 |
| 1x1-60 | 6.99 |
| 256x4-80 | 5.99 |
| 256x4-70 | 5.99 |
| 256x4-60 | 5.99 |
| 256x1-15-12-10 | 1.55/1.60/1.75 |
| 256x70/80 | 1.80 |
| 4464-80 | 1.99 |
| 4464-10 | 1.89 |

| CPU CHIPS | |
|---|---|
| 80386DX-16/20/25/33 | $29/29/39/59 |
| 80486DX2-50/66 | 299/449 |
| 80486DX-25/33 | 219/259 |
| 80486SX33/25 | 139/89 |
| 80386DX40 | 47 |
| 386DX40 w/Socket | 45 |
| 80286-8/10 (PLCC) | 4/8 |
| 80286-12/16 (PLCC) | 6/9 |
| V-30-10 V-30/20-10 | 9.59 |

| SPECIAL MATH CO-PROC | |
|---|---|
| INTEL 80387DX-20 Tube | $30 |

| MATH CO-PROCESSOR | |
|---|---|
| INTEL | |
| 80487SX (For all Speed) | $349 |
| 80486SX-2 (Overdrive) | 299 |
| 80486SX-25 (Overdrive) | 429 |
| 80486SX-33 (Overdrive) | 559 |
| 80486DX-25 (Overdrive) | 449 |
| 80486DX-33 (Overdrive) | 569 |
| 8087-5 MHz | 50 |
| 8087-2 8 MHz | 69 |
| 8087-1 10 MHz | 110 |
| 80287-6 6 MHz | 20 |
| 80287-8 8 MHz | 39 |
| 80287XL 12 MHz (Laptop) | 69 |
| 80287-10 10 MHz | 35 |
| 80C287-12 MHz | 35 |
| 80387SX-16,20,25 | 79 |
| 80387DX-16,20,25,33 | 79 |
| 80387DX-25 (Tube) | 39 |
| WEITEK | |
| 3167-20 20 MHz (Tube) | $29 |
| 3167-25 25 MHz | 79 |
| 3167-33 33 MHz | 169 |
| 4167-25 MHz | 299 |
| 4167-33 MHz | 529 |
| CYRIX | |
| 83D87-40 40 MHz | $59 |
| 83D87-20 20 MHz | 49 |
| 83D87-25 25 MHz | 59 |
| 83D87-33 33 MHz | 59 |
| 83SX87-25 16 MHz | 55 |
| 83SX87-33 MHz | 59 |
| IIT | |
| 8C87-8 | $29 |
| 80C287-10 | 39 |
| 80C387SX-25 | 49 |
| 80C387SX-33 | 69 |
| 8C387DX-20 | 59 |
| 8C387DX-25 | 59 |
| 8C387DX-33 | 69 |
| 8C387DX-40 | 69 |
| ULSI | |
| US 83C87 16/20 MHz SX | $49 |
| US 83C87 20/25 MHz SX | 59 |
| US 83C87 25/33 MHz DX | 59 |
| US 83C87 40 MHz DX | 59 |

| EPROMS | |
|---|---|
| 2764-200ns | $2⁷⁵ |
| 27C64-200ns | 2⁹⁹ |
| 27128-200ns | 3⁰⁰ |
| 27128-150ns | 4⁰⁰ |
| 27256-200ns | 3⁵⁰ |
| 27C256-200ns | 3⁷⁵ |
| 27C512-200ns | 3⁹⁹ |
| 27C020-150ns | 7⁹⁹ |
| 27C010-150ns | 5⁹⁹ |
| 27C040-150ns | 13⁹⁹ |
| 514402-80 (1x4) STT, ZIPP | 22 |
| 514400-80 (1x4) ZIPP | 20 |
| 514400-80 (1x4) DIPP | 25 |
| 514400-80 (1x4) SOJ | 19 |
| 514100-80 (4x1) SOJ | 17 |

| COMPAQ MEMORY | |
|---|---|
| DeskPro 386/20e, 20, 35e, 25 286e | |
| 1 MB Module | $175 |
| 4 MB Module | 165 |
| DeskPro 386/20e, 25e | |
| 1-9 MB Exp Brd | 140 |
| 4-12 MB Exp Brd | 269 |
| DeskPro 386s-16 | |
| 1 MB Module | 89 |
| 4 MB Module | 179 |
| 1-9 MB Exp Brd | 159 |
| 4-12 MB Exp Brd | 240 |
| DeskPro 286N, 386N, 386SX/20 | |
| 2 MB Module | 75 |
| 4 MB Module | 175 |
| DeskPro 386N, 386SX/20 | |
| 2 MB Module | 118 |
| DeskPro 286N, 386N | |
| 0-4 MB Exp Board | 175 |
| DeskPro 386/33SL, 486/25, 486/33L System Pro | |
| 2 MB Module | 139 |
| 8 MB Module | 239 |
| 32 MB Module | 1700 |
| DeskPro 386/16 | |
| 1 MB Kit | 89 |
| 1 MB Exp Brd | 229 |
| 2 MB Exp Brd | 329 |
| 4 MB Kit. | CALL |
| 4 MB Exp Brd | 425 |
| 8 MB Exp Brd | 725 |
| Portable 386 | |
| 1 MB Kit. | 189 |
| 4 MB Exp Brd | 319 |
| 4 MB Exp Brd | 322 |
| Portable LTE (8086) | |
| 512K Module | CALL |
| Portable LTE/286 | |
| 1 MB Module | 89 |
| 2 MB Module | 149 |
| 4 MB Module | 425 |
| Portable SLT/286 | |
| 1 MB Module | 169 |
| 4 MB Module | 349 |
| Portable SLT/386 | |
| 1 MB Module | 169 |
| 2 MB Module | 189 |
| 4 MB Module | 310 |
| Portable III | |
| 512K Kit. | 55 |
| 2 MB Kit. | 139 |

| IBM PS/2 MEMORY | |
|---|---|
| Mdl 30/386, Exp Brd | |
| 512K Kit | $54 |
| 2 MB Kit | 89 |
| Mdl 70-061; -121; 55SX; 65SX: Exp Brd | |
| 1 MB Module | 69 |
| Mdls 70-061: E61: 121: 50Z, 55LS, 55SX: 65SX: P70: | |
| 2 MB Module | 85 |
| Mdls 70-A21: A61, B21, B61 | |
| 2 MB Module | 99 |
| Mdls 55SX: 65SX: 55LS, 65LS | |
| 4 MB Module | 159 |
| Mdls 80-111; 121, 311, 321 | |
| 2 MB Card | 99 |
| Mdls 80-A21; A31 | |
| 4 MB Card | 215 |
| Mdls 80-A21: A31 | |
| 4 MB Card | 215 |
| Mdls 90; 95 | |
| 2 MB Module | 159 |
| 4 MB Module | 259 |
| Mdls 50 & 60 | |
| 2-8 MB Exp Brd. | 275 |
| Mdls 70 & 80 | |
| 2-8 MB Exp Brd | 325 |
| 2-14 MB Exp Brd | 450 |
| 4-16 MB Exp Brd | 475 |
| Adapter | |
| 2 MB Module | CALL |
| PS/1 Home System | |
| 512K Upgrade | CALL |
| 2 MB Upgrade | CALL |

| TOSHIBA PORTABLE MEMORY | | |
|---|---|---|
| T1200XE | 2 MB Card | $89 |
| T1600 | 2 MB Card | 99 |
| T3100SX | 2 MB Card | 85 |
| | 4 MB Card | 169 |
| T3100e | 512K Card | CALL |
| | 2 MB Card | 85 |
| T3200SX | 2 MB Card | 89 |
| | 4 MB Card | CALL |
| T3200 | 3 MB Card | 175 |
| T1000SE; XE | 1 MB Card | 89 |
| T5100 | 2 MB Card | 99 |
| T5200: 8500 | 2 MB Card | 99 |

| STATIC ZIPPS | |
|---|---|
| 1x4 70ns DIPP | $25⁰⁰ |
| 256x4 10/80/70 Zipp | 5⁹⁹ |
| Video Zipps D42274V-08/07 | 7⁰⁰ |

| CACHE MEMORY | | | |
|---|---|---|---|
| 32x8-25 | $4.25 | 8x8-20 | $2.75 |
| 32x8-20 | 5.25 | 8x8-25 | 2.25 |
| 32x8-15 | 6.00 | 8x8-15 | 3.99 |
| 32x8-12 | CALL | 16x4-25 | 2.25 |
| 64x4-25 | 6.00 | 16x4-20 | 2.75 |
| 64x4-20 | 7.00 | 16x4-15 | 2.25 |
| 64x4-15 | 10.00 | 128x8-25 | 32.50 |
| 64x1-20 | 6.75 | 128x8-20 | CALL |
| 64x1-15 | 6.75 | 128x8-15 | CALL |

| 72 Pin SIMMS | |
|---|---|
| 2 MB 604-80ns | $79 |
| 4MB 1x36-80ns | 169 |
| 4MB 1x36-70ns | 179 |
| 8MB 2x36-80ns | 369 |
| 8MB 2x36-70ns | 399 |
| 16MB 4x36-70ns | 649 |
| 16MB 4x32-70 | 569 |

COMPAQ MEMORY

| Model | P/N | |
|---|---|---|
| LTE 286 | | |
| 2 MB | 117081-002 | $115 |
| 4 MB | 117081-003 | 175 |
| SLT 286 | | |
| 4 MB | 110237-001 | 299 |
| LTE 386S/20 | | |
| 2 MB | 12125-001 | 119 |
| 4 MB | 121125-002 | 195 |
| Contura Lite 20/25 | | |
| 2 MB | 129769-001 | 105 |
| 4 MB | 129769-002 | 155 |
| 8 MB | 129769-003 | 295 |
| Portable 386 | | |
| 1 MB | 107651-001 | 109 |
| 4 MB | 107653-001 | 299 |
| Portable III | | |
| 2 MB | 10-7332-001 | 79 |
| EBD | 167811-001 | 199 |
| SLT 386 | | |
| 2 MB | 118304-001 | 119 |
| 4 MB | 118305-001 | 185 |
| Deskpro 386S (E. Board) | | |
| 4 MB | 11364-001 | 239 |
| 4 MB | 112534-001 | 169 |
| Deskpro 386/33L, 486/33L, 50/25 | | |
| 2 MB | 115144-001 | 99 |
| 8 MB | 116561-001 | 335 |
| 32 MB | 116568-001 | 1275 |
| 6 Socket E Board | | CALL |
| Deskpro 386/20e, 25e (E. Board) | | |
| 4 MB | 113645-001 | 99 |
| 8 MB | 116561-001 | 335 |
| 32 MB | 116568-001 | 1275 |
| Deskpro 386/20e, 25e (E. Board) | | |
| 4 MB | 113645-001 | 239 |
| Deskpro 386/20,20e,25e | | |
| 4 MB | 113132-001 | 169 |
| Deskpro 286N, 386N, 386SX/20, 386/25M, 486/33M, 486S/25M, 486S/16M | | |
| 2 MB | 118689-001 | 95 |
| 4 MB | 118690-001 | 145 |
| 8 MB | 128877-001 | 294 |
| Deskpro 486/33L, 486/50L, 386/33L | | CALL |
| Prolinea 3/25S & 3/252S | | |
| 2 MB | 141738-001 | 105 |
| 8 MB | 141742-001 | 375 |
| Prolinea 4/33 | | |
| 2 MB | 141682-001 | 95 |
| 4 MB | 141684-001 | 159 |
| 8 MB | 141685-001 | 299 |
| Other Models | | CALL |

| IBM PS/2 & PS/1 MEMORY | | |
|---|---|---|
| PS/1 286/386SX | 2/4 MB | $95/149 |
| PS/1 Consultant Essential/Expert | 1/2/4/8 MB | 45/79/155/299 |
| 386 Valuepoint | 2/4/8 MB | 89/159/305 |
| 486 Valuepoint | 4/16 MB | 169/595 |
| PS/2 30-286 | 2 MB | 89 |
| 50Z, 55SX, 65SX, 70 | 2/4 MB | 79/145 |
| 40SX, 35SX,35SL | 2/4 MB | 79/149 |
| 70A21, A61, 121 | 2 MB | 109 |
| 80-11, 121, 311 | 4 MB | 210 |
| 95,90,P75, PS/1 Pro | 2/4/8 MB | 110/149/305 |
| 16 Bit Exp Bd For 50, 50Z, 60, 65SX | 0K | 144 |
| 32 Bit Exp Board for all 70 & 80 models | 0K | 164 |
| RISC 6000 | 16/32/64 MB | 745/1490/2890 |

| LASER PRINTER MEMORY | |
|---|---|
| Price includes Memory, Board & Installation Instructions | |
| IBM LASER | |
| 4019/4019E | |
| 1/2/3.5 MB | $89/119/169 |
| 4029 (All Model) 4 MB | 139 |
| EPSON LASER | |
| 6000-2/4MB | $114/175 |
| 7000-2/3 MB | 125/159 |
| Action LaserII | |
| -2/3/4/5 MB | 108/139/169/199 |
| HP LASER | |
| HPII/IID 2/4 MB Board | $105/189 |
| HP 4/4M 4/8MB | 149/389 |
| HP IIP,IIP+,III,IIID, | |
| IIIP 1/2/3/4 | 60/95/134/189 |
| IIsi 4/8 MB | 138/264 |
| LaserJet Fax 1 MB | 82 |
| DeskJet 500/500c 550C 256K | 52 |
| Design Jet Plotter 4 MB | 144 |
| PANASONIC LASER | |
| KXP4410/KXP4430 | |
| 1/2/3/4 MB | $89/115/149/184 |
| KXP4420/4450/4451 | |
| 1/2/3/4 MB | 79/108/139/179 |
| KXP4450 1 MB | 111 |
| KXP4455 2 MB | 129 |
| OKI LASER | |
| OL400 1/2 MB Board | $84/106 |
| OL800/820 2/4 MB Board | 107/165 |
| OL810 2/3/4 | |
| MB Board | 145/179/219 |
| QMS LASER | |
| PS 410 2/3/4 MB | $119/165/189 |
| PS 860, 1700 | |
| 1/4/8 MB | 53/133/166 |
| PS 815, 825, | |
| 815MR, 2/4/6 | 168/232/295 |
| SHARP LASER | |
| 9500PS 1 MB | $55 |
| JX-9500/9700 | |
| 1/1.5/2.5/4 | 105/135/188/344 |
| OTHERS | |
| Apple Laserwriter | |
| II/IINT/IINTX 4 MB | $149 |
| Brother HL-4 | |
| 2/3/4 MB | 119/165/189 |
| Brother HL-8E V 1/2 MB | 99/139 |
| Compaq Pagemarq | |
| 15 & 20 1/4/8 | 49/139/266 |
| Fujitsu RX7100/7200 | |
| 1/2 MB | 185/245 |
| Kyocera F800, | |
| F800Am F800T 2/4 | 95/137 |
| NEC Silentwriter 90/290 | 99/124 |
| NEC Silentwriter 95 2 MB | 104 |

| AST MEMORY | | |
|---|---|---|
| Bravo 3/33(LC) 325S | 2/8 MB | $84/299 |
| Bravo 486/25 & 4/33 | 2/8 MB | 109/309 |
| Bravo 486LC | 4/8/16 MB | 145/295/565 |
| Cupid-32 Board | 0K | 219 |
| Premium 386C | 4 MB | 145 |
| Premium SE 450 | 4 MB | 145 |
| Premium 386/25, SX,33,486/25 | 1 MB | 40 |
| Premium II 386, 486 | 1/4 MB | 37/145 |
| Executive Notebook | 4 MB | 134 |
| Other Models | | CALL |

| SUN MEMORY | | |
|---|---|---|
| SPARC SLC | 4 MB | $145 |
| 3/60, 80, 4/40, 60, 65 | 4/16 MB | 139/495 |
| SPARC 1 &1+, 1Pc | 4/16 MB | 140/499 |
| SPARC 10 | 16/64 MB | 645/CALL |
| SUN Classic | 16 MB | 625 |
| SPARC Server 630np | 64 MB | 2285 |
| SUN IPX, ELC | 4/16 MB | 175/555 |
| SPARC II | 16 MB | 560 |
| Other Models | | CALL |

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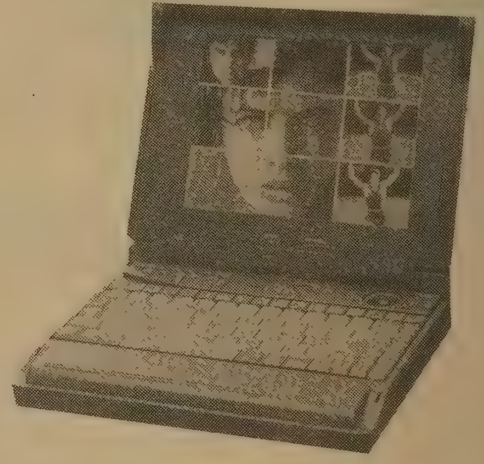
## WEDGE SHOWBOOK IV

The ShowBook IV incorporates many new advanced features, including VESA compliant local bus video, 4MB of RAM (expandable to 20MB), a 120MB hard disk drive (upgradable to 340MB), and a 486DX-33 processor. You can easily upgrade to a 486DX-66/2 by lifting the keyboard module and swapping the chips. Other options include a PCMCIA III slot and a 200-pin expansion port that lets you connect a companion docking station. The Show Station allows for two built-in stereo speakers, two additional VESA local bus slots, four additional ISA slots, a built-in SCSI controller, and two serial and one parallel port. The ShowBook IV also gives you the capability of simultaneous usage of two keyboards, allowing two users to edit a document at the same time. Wedge Technology, Inc., 1657 McCandless Dr., Milpitas, CA 95035. (408)263-9888.



## TI TRAVELMATE 4000E WINSX/25 COLOR NOTEBOOK

The newest Texas Instruments TravelMate notebook is a lightweight, high-performance color notebook. It weighs 6lbs. including the battery, and is powered by a 25MHz, 486SX processor. Its new advanced passive 8.5" color screen displays 256 colors simultaneously at 640 x 480 VGA resolution and allows simultaneous display with an external monitor. Other features include TI's new enhanced notebook keyboard and a high-speed video system for fast Windows performance as well as a 120MB hard disk with both MS-DOS 6 and Windows 3.1 preinstalled. To help users work with Windows, the notebook includes

*Continued on page 309*

## 19" RACKMOUNT ENCLOSURE

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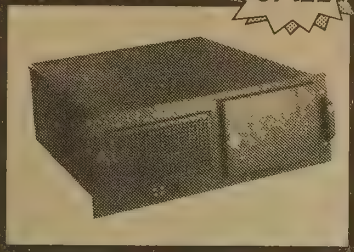
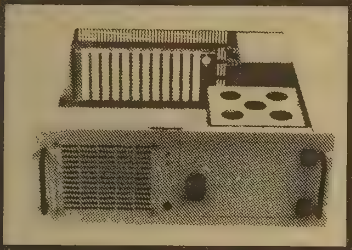


MADE IN U.S.A.



## 19" RACKMOUNT W/MONITOR

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- 19" Rackmounting
- Integral Monitor
- 10" .28 dot pitch SVGA Color
- 9" Mono-TTL or VGA
- 8 or 14 Slot Passive Backplane
- 8 Slot Motherboard Mounting
- U.S.A. Manufactured

## 19" RACKMOUNT ENCLOSURE

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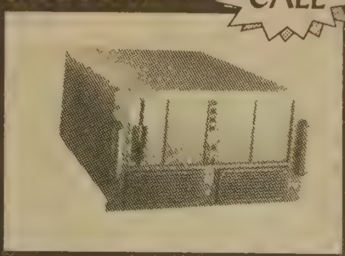

- 8, 14 & 20 Slot Options
- Dual Power Supplies
- Power Supply Redundancy Option
- 8 Drive Bays
- 8 Fans
- Motherboard or Passive Backplane
- 200-1000 Watt Power Supply
- USA Manufactured

## 19" RACKMOUNT MONITOR KIT

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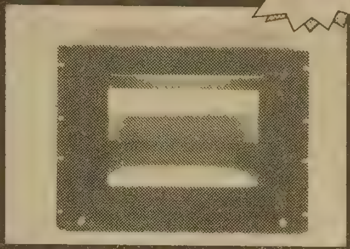

## 19" RACKMOUNT KEYBOARD

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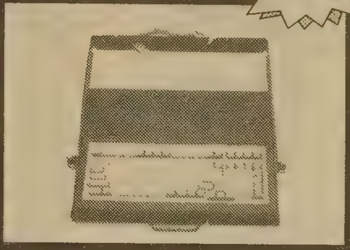
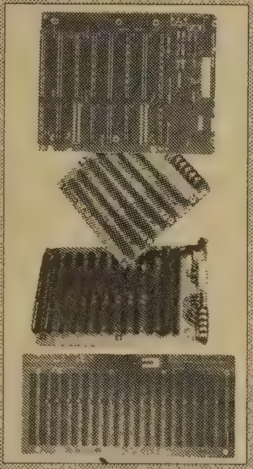


## CENTRALIZED LAN SYSTEM

## PASSIVE BACKPLANE BOARD



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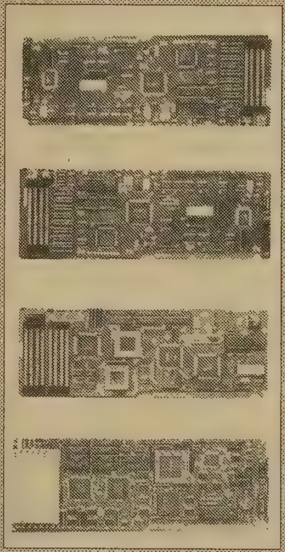
|---|---|
| 6 SLOT | $53 |
| 8 SLOT | $35 |
| 12 SLOT | $90 |
| 14 SLOT | $94 |
| 18 SLOT | $180 |
| 20 SLOT | $194 |

SPECIAL OPTION

- 14 SLOT SEGMENTED 6,4,4
- 18 SLOT SEGMENTED 5,4,4,5
- 20 SLOT SEGMENTED 5,5,5,5

## SINGLE CPU BOARD



**Guaranteed high reliability: 100% SMD board.**

286C-12 w/CPU ....... $125
(w/8 Slots)

386SXC-16 w/CPU .... $220
386SXC-20 w/CPU .... $280
(w/8 Slots)

386DXC-33 w/CPU .... $380

486DXC-33 w/oCPU $550
Upgradable To DX-50, DX2-50/66

Available with AMI & Phoenix BIOS

## SYSTEMS FOR SALE

| | |
|---|---|
| 286C-12 CPU Card System | $248 |
| 386SX-16 CPU Card System | $430 |
| 386SX-20 CPU Card System | $440 |
| 386DX-33 CPU Card System | $515 |

*Basic System Configuration

- Mini Tower Case w/200W PS
- 1 MB RAM - 1FDD
- 512K VGA
- 14" Mono VGA Flat Screen Hyundai Monitor
- 101 Keyboard

SPECIAL

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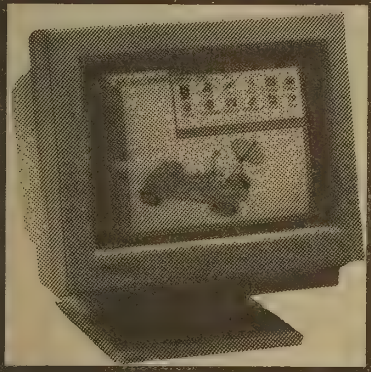
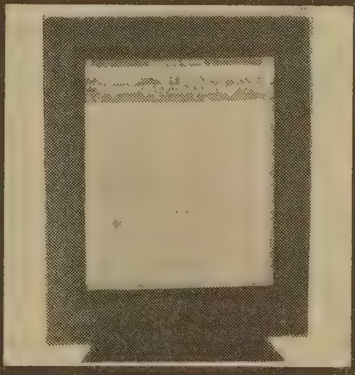


### 14" SVGA COLOR MONITOR

- CRT 14" DIAGONAL NON-GLARE FLAT
- DOT .28mm
- RES: 1024 X 768 NON-INTERLACE, 800 X 600, 720 X 400, 640 X 480, 640 X 350
- POWER SUPPLY 120-240V AUTO SELECTION

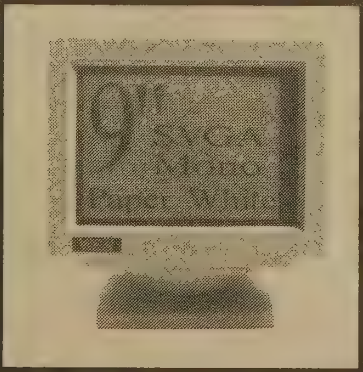


### 15" MACINTOSH FULL PAGE MONITOR

- CRT 15" DIAGONAL, NON-GLARE FLAT PAPER WHITE
- MACINTOSH II, SE, SE/30 COMPATIBLE
- RES: 640x872 FULL PAGE
- POWER SUPPLY: 96 to 250V

### 15" PAPER WHITE VGA MONITOR

- CRT: 15" DIAGONAL, NON-GLARE FLAT PAPER WHITE
- RES: 640 x 600, 640 x 550, 640 x 350, 720 x 400, 640 x 480
- POWER SUPPLY: 120V



### 9" SVGA MONITOR MONO PAPER WHITE

- CRT: 9" x 90 DEFLECTION NON-GLARE PAPER WHITE
- RES: 1024x768, 720x400, 640x480
- POWER SUPPLY: 100-240V

## HYUNDAI

### 1. COLOR MONITORS

| Model | DESCRIPTION | PRICE |
|---|---|---|
| HMC-423B | 14" SUPER VGA .39 Dot Pitch | $248 |
| HCM-423E | 14" SUPER VGA .28 Dot Pitch | $300 |
| HCM-433E | 14" SUPER VGA .28 Dot Pitch Non-Int | $350 |
| HCM-540EV | 15" SUPER VGA .28 Dot Pitch Non-Int MPR II Flat Screen, Multiscan | $468 |

### 2. MONOCHROME MONITORS

| Model | DESCRIPTION | PRICE |
|---|---|---|
| WEN | 9" SVGA MONO PAPER WHITE | $150 |
| HMM-551 | 15" Portrait Paper White VGA | $254 |
| HMM-550 | 15" Portrait Paper White VGA (MAC) | $260 |
| Adapter For Apple Mac | | $7.00 |

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**(408) 262-8688 Milpitas**
**(415) 508-8688 San Carlos**

| SYSTEM | M/B + CPU | * BASIC SYSTEM | BASIC SYS +40MB HDD + 14" MONO & MGP CARD | BASIC SYS + 80MB HDD + VGA CARD & MONITOR | BASIC SYS +80MB HDD + SVGA CARD & MONITOR | BASIC SYS +130MB HDD + SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +130MB HDD +SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +170MB HDD +SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +200MB HDD +SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +250MB HDD +SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +340MB HDD +SVGA CARD & MONITOR | BASIC SYS W/4MB RAM 1.2 & 1.44 FDD +540MB HDD +SVGA CARD & MONITOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 486DX2-66/256C PCI | $758 | $918 | $1,106 | $1,254 | $1,278 | $1,294 | $1,488 | $1,508 | $1,528 | $1,548 | $1,598 | $1,788 |
| 486DX-50/256C PCI | 708 | 868 | 1,056 | 1,204 | 1,228 | 1,244 | 1,438 | 1,458 | 1,478 | 1,498 | 1,548 | 1,738 |
| 486DX-33/256C PCI | 568 | 728 | 916 | 1,064 | 1,088 | 1,104 | 1,298 | 1,318 | 1,338 | 1,358 | 1,408 | 1,598 |
| 486DX2-66/256C Orchid VLB | 608 | 768 | 956 | 1,104 | 1,128 | 1,144 | 1,338 | 1,358 | 1,378 | 1,398 | 1,448 | 1,638 |
| 486DX-50/256C Orchid VLB | 558 | 718 | 906 | 1,054 | 1,078 | 1,094 | 1,288 | 1,308 | 1,328 | 1,348 | 1,398 | 1,588 |
| 486DX-33/256C Orchid VLB | 418 | 578 | 766 | 914 | 938 | 954 | 1,148 | 1,168 | 1,188 | 1,208 | 1,258 | 1,448 |
| 486SLC2-66/64C IBM VLB | 288 | 448 | 636 | 784 | 808 | 824 | 1,018 | 1,038 | 1,058 | 1,078 | 1,128 | 1,318 |
| 486SLC2-50/64C IBM VLB | 238 | 398 | 586 | 734 | 758 | 774 | 968 | 988 | 1,008 | 1,028 | 1,078 | 1,268 |
| 486DX2-66/128C VLB | 538 | 688 | 876 | 1,024 | 1,048 | 1,064 | 1,258 | 1,278 | 1,298 | 1,318 | 1,368 | 1,558 |
| 486DX-50/128C VLB | 496 | 646 | 834 | 982 | 1,006 | 1,022 | 1,216 | 1,236 | 1,256 | 1,276 | 1,326 | 1,516 |
| 486DX-33/128C VLB | 356 | 506 | 694 | 842 | 866 | 882 | 1,076 | 1,096 | 1,116 | 1,136 | 1,186 | 1,376 |
| 486DX2-66/128C EISA | 576 | 736 | 924 | 1,072 | 1,096 | 1,112 | 1,306 | 1,326 | 1,346 | 1,366 | 1,416 | 1,606 |
| 486DX-50/128C EISA | 536 | 696 | 884 | 1,032 | 1,056 | 1,072 | 1,266 | 1,286 | 1,306 | 1,326 | 1,376 | 1,566 |
| 486DX-33/128C EISA | 386 | 546 | 734 | 882 | 906 | 922 | 1,116 | 1,136 | 1,156 | 1,176 | 1,226 | 1,416 |
| 486DX2-66C ISA | 508 | 664 | 852 | 1,000 | 1,024 | 1,040 | 1,234 | 1,254 | 1,274 | 1,294 | 1,344 | 1,534 |
| 486DX-50/128C ISA | 484 | 644 | 832 | 980 | 1,004 | 1,020 | 1,214 | 1,234 | 1,254 | 1,274 | 1,324 | 1,514 |
| 486DX2-50C ISA | 378 | 538 | 726 | 874 | 898 | 914 | 1,108 | 1,128 | 1,148 | 1,168 | 1,218 | 1,408 |
| 486DX-40/128C ISA | 338 | 498 | 676 | 824 | 848 | 864 | 1,058 | 1,078 | 1,098 | 1,118 | 1,168 | 1,358 |
| 486DX-33C ISA | 318 | 472 | 660 | 808 | 832 | 848 | 1,042 | 1,062 | 1,082 | 1,102 | 1,152 | 1,342 |
| 486SX-33C ISA | 178 | 338 | 526 | 674 | 698 | 714 | 908 | 928 | 948 | 968 | 1,018 | 1,208 |
| 486SX-25C ISA | 132 | 282 | 470 | 618 | 642 | 658 | 852 | 872 | 892 | 912 | 962 | 1,152 |
| 486DLC-40/64C ISA | 144 | 288 | 466 | 614 | 638 | 654 | 848 | 868 | 888 | 908 | 958 | 1,148 |
| 486DLC-33/64C ISA | 122 | 272 | 450 | 598 | 622 | 638 | 832 | 852 | 872 | 892 | 942 | 1,132 |
| 386DX-40/64C | 98 | 246 | 434 | 582 | 606 | 622 | 816 | 836 | 856 | 876 | 926 | 1,116 |
| 386SX-40 | 74 | 234 | 422 | 570 | 594 | 610 | 804 | 824 | 844 | 864 | 914 | 1,104 |
| 386SX-33 | 66 | 226 | 414 | 562 | 586 | 602 | 796 | 816 | 836 | 856 | 906 | 1,096 |

*** BASIC SYSTEM CONFIGURATION:** Motherboard & CPU, 1MB memory installed, 1:1 2HD/2FD controller with 2S/1P/1G, 1.2MB or 1.44MB Floppy Drive, Internal Clock/Calendar, Enhance Case with Power Supply, and 101-Key Enhanced Keyboard.

## *Super Sale – Best Prices in Town!*

### DELUXE SYSTEMS

| | |
|---|---|
| 386SX-33 | $826 |
| 386SX-40 | 836 |
| 386DX-40/64K | 846 |
| 486SX-25/128K | 926 |
| 486SX-33/128K | 966 |
| 486DLC-33/64K | 856 |
| 486DLC-40/64K | 866 |
| 486DX-33/128K | 1,076 |
| 486DX-40/128K | 1,076 |
| 486DX2-50/128K | 1,146 |
| 486DX-50/128K | 1,216 |
| 486DX2-66/128K | 1,266 |
| 486 DX-33/128K EISA | 1,156 |
| 486DX-50/128K EISA | 1,286 |
| 486DX2-66/128K EISA | 1,336 |
| 486SLC2-50/64K VLB | 996 |
| 486SLC2-66/64K VLB | 1,046 |
| 486DX-33/128K VLB | 1,086 |
| 486DX-50/128K VLB | 1,226 |
| 486DX2-66/128K VLB | 1,276 |
| 486DX-33/256K PCI | 1,336 |
| 486DX-50/256K PCI | 1,466 |
| 486DX-66/256K PCI | 1,516 |

### SYSTEM CONFIGURATION

- Motherboard w/CPU
- 4MB RAM 70NS
- 170MB Fast Hard Drive
- 1.2MB and 1.44MB Floppy Drive
- IDE 2HD/2FD Controller w/2S/1P/1G
- 512KB SVGA Card
- 14" SVGA .28 Color Monitor
- 101-Key Enhanced Keyboard
- Enhanced Case w/Power Supply

### OPTIONS

| | |
|---|---|
| • 200MB Hard Drive | Add $25 |
| • 250MB Hard Drive | Add $45 |
| • 340MB Hard Drive | Add $90 |
| • 540MB Hard Drive | Add $280 |
| • 14" Non-Interlaced Monitor | Add $20 |
| • 15" Non-Interlaced Monitor | Add $120 |
| • VLB IDE Controller | Add $20 |
| • PCI Bus VGA Card w/1MB | Add $170 |
| • 16BIT SVGA Card w/1MB | Add $20 |
| • Window Accelerator w/1MB | Add $30 |
| • Orchid Fahrenheit 1280 | Add $110 |
| • Diamond S.S. Pro VLB w/1MB | Add $70 |
| • Orchid Fahrenheit VLB w/1MB | Add $120 |
| • 250MB Tape Back-up | Add $130 |
| • 16BIT Ethernet Card | Add $50 |
| • Deluxe Speakers | Add $10 |
| • Sony or Mitsumi CD-ROM | Add $150 |
| • Sound Blaster Pro Deluxe | Add $110 |
| • CD ROM Upgrade Kit | Add $340 |

## VESA DELUXE SYSTEMS

### ORCHID VLB SYSTEMS

| | |
|---|---|
| 486DX-33/256K | $1,528 |
| 486DX-50/256K | 1,678 |
| 486DX2-66/256K | 1,708 |

### SYSTEM CONFIGURATION

- Orchid VLB Motherboard
- Orchid Fahrenheit VLB w/1MB
- VLB IDE Controller w/2S/1P/1G
- 4MB High Speed RAM
- 212MB Fast Hard Drive
- 1.2MB Floppy Drive
- 1.44MB Floppy Drive
- 15" Non-Interlaced Monitor
- Focus 9000 Keyboard
- Medium Tower Case w/PS

### OPTIONS

| | |
|---|---|
| • 170MB Hard Drive | Less $20 |
| • 250MB Hard Drive | Add $20 |
| • 340MB Hard Drive | Add $70 |
| • 540MB Hard Drive | Add $260 |
| • 17" Non-Interlaced Monitor | Add $290 |
| • Sound Blaster Pro Deluxe | Add $110 |
| • 250MB Tape Back-up | Add $130 |
| • Sony or Mitsumi CD-ROM | Add $150 |
| • CD ROM Upgrade Kit | Add $340 |

## BEST BUY NOTEBOOKS

### NOTEBOOK COMPUTERS

| | |
|---|---|
| 486SX-25 (MONO) | $1,628 |
| 486DX-33 (MONO) | 1,798 |
| 486DX-50 (MONO) | 1,998 |
| 486DX2-66 (MONO) | 2,098 |

### STANDARD FEATURES

- 4MB RAM expandable to 20MB
- 120MB Hard Drive (200MB, 340MB Hard Drives available)
- 1.44MB Floppy Drive
- 2S/1P/1G
- One External SVGA Port
- One External FDD Port
- One External Keyboard Port
- One 100 - PI N Expansion Port
- 120V/240V AC/DC Adapter
- Built-in Trackball

### NOTEBOOK COMPUTERS

| | |
|---|---|
| 486DX-33 (COLOR) | $2,998 |
| 486DX-50 (COLOR) | 3,198 |
| 486DX2-66 (COLOR) | 3,298 |

# Vhy do smart customers keep buying from HI-TECH USA? Simply because we deliver the best values.

all and join our smart customer list: ABC, ADAPTEC, ALLIED SIGNAL, AMD, AT&T, CIRRUS LOGIC, DATAQUEST, FLORIDA STATE UNIVERSITY, GENERAL LECTRIC, IIT, INTEL, LAWRENCE LAB, MAXTOR, NASA, NATIONAL SEMICONDUCTOR, PG&E, QUANTUM CORP, SEAGATE TECHNOLOGY, SIERRA EMICONDUCTOR, STANFORD UNIVERSITY, SUN MICROSYSTEMS, U.C. BERKELEY, WESTERN DIGITAL, YALE UNIVERSITY, and many, many more.

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## CASE WITH POWER SUPPLY

| | |
|---|---|
| Mini Tower Case w/200W Power Supply | $46 |
| Desktop AT Case w/200W Power Supply | 48 |
| Medium Tower Case w/230W Power Supply | 78 |
| Full Tower Case w/250W Power Supply | 98 |

## CD-ROM / MULTIMEDIA

| | |
|---|---|
| Creative Labs | |
| Sound Blaster | $58 |
| Sound Blaster Pro | 100 |
| Sound Blaster Pro Deluxe | 104 |
| Sound Blaster 16 ASP | 193 |
| CD ROM Upgrade Kit | 338 |
| Discovery CD 8 Upgrade Kit | 358 |
| Discovery CD 16 Upgrade Kit | 418 |
| Edutainment CD 8 Upgrade Kit | 418 |
| Edutainment CD 16 Upgrade Kit | 468 |
| Chinon CDS535 (Int.) SCSI | 328 |
| Mediavision Pro Audio Spectrum 16 | 138 |
| Mitsumi CD-ROM (350MS) | 148 |
| NEC CD-ROM 84 / 74 (Int./Ext.) SCSI | 380 / 498 |
| SONY CD-ROM 31A | 144 |
| TEXEL | |
| DM3028 (SCSI) Internal | 378 |
| DM5024 (SCSI) External | 448 |
| Toshiba XM-3401B (200ms) SCSI | 358 |
| Trantor SCSI Host w/Driver | 58 |
| Audio Pak (Sound Card, Speaker, Joystick, Earphone) | 58 |
| Deluxe Speakers | 10 |

## CD SOFTWARE TITLES

| | |
|---|---|
| American Bus Phone Book-1992 | 18 |
| Animals v1.0 DOS | 16 |
| Annabel's Dreams-Egypt | 67 |
| Arthur's Teacher Trouble | 22 |
| Atlas Pak v3.1 World/US | 20 |
| Barron's College Guide | 18 |
| Battle Chess DOS | 16 |
| Beyond the Wall of Stars | 20 |
| Beauty & Beast MPC | 14 |
| Bring the World to Your Senses | 12 |
| Campton's Family Encyclopedia | 35 |
| Campton's Encyclopedia MPC | 60 |
| Carmen San Diego DOS | 20 |
| CD Game Pack II DOS | 17 |
| CD Storytime DOS | 16 |
| Chess master 3000 MPC | 17 |
| CIA World Fact Book DOS | 17 |
| Composer Quest MPC | 27 |
| Desert Storm MPC/MAC | 18 |
| Dictionary of the Living World | 25 |
| Dinosaur Adventure | 21 |
| Electronics Home Library | 18 |
| Family Choice/Britannica DOS | 17 |
| Family Doctor DOS/MAC | 18 |
| Family Education Collections DOS | 18 |
| Great Cities-Vol 1 / Vol 2 DOS | 18 |
| Guinness Disk of Records MPC | 19 |
| ets & Props MPC | 19 |
| ones in Fast Lane MPC | 15 |
| Killer Truck CD-Music Library | 17 |
| King's Quest V DOS | 15 |
| Kodak Photo CD Access | 14 |
| Language of the World | 30 |
| Library of Future 1st DOS | 44 |
| Loom From Lucas Film DOS | 15 |
| Macmillan Dictionary For Children | 20 |
| Macromedia Action for Windows | 26 |
| Mantis Experimental Fighter | 15 |
| Mario is Missing/World Atlas 3.2 | 17 |
| Mavis Teaches Typing MPC | 17 |
| Mayo Clinic Family Health | 17 |
| Media Clips - 4 Pk MPC/MAC | 37 |
| Micropose Collection 4 Games | 18 |
| Microsoft Bookshelf MPC | 50 |
| Microsoft Works MPC | 50 |
| MIDI Music Shop | 17 |
| Mixed-up Mother Goose MPC | 17 |
| Monkey Island DOS | 17 |
| MPC Audubon's Birds | 16 |
| MPC Audubon's Mammals | 16 |
| National Geographic Mammals DOS | 21 |
| National Park | 18 |
| Ocean Digital Imagery VI DOS | 20 |
| PC SIG 12th Edition | 24 |
| Peter & Wolf MPC | 14 |
| Playing with Language (English) | 22 |
| Playing with Language (French) | 22 |
| Playing with Language (German) | 22 |
| Playing with Language (Japanese) | 22 |
| Playing with Language (Spanish) | 22 |
| Publish It 2.0 DOS | 20 |
| Secret Weapons/Luftwf DOS | 15 |
| Sherlock Holmes DOS | 15 |
| Sleaping Beauty | 16 |
| So Much Shareware II DOS | 14 |
| So Much Shareware III DOS | 19 |
| Sound Library MPC | 13 |
| Space Adventure | 23 |
| Space Quest IV By Sierra DOS | 20 |
| Space Shuttle | 19 |
| Sport's Best (3 in 1) DOS | 18 |
| Stellar 7 DOS | 15 |
| Survey of Western Art MPC | 24 |
| The Gold Collection (Shareware) | 18 |
| The Seventh Guest | 58 |
| The Right College | 20 |
| The Shareware Concept | 15 |
| Time Almanac 1991 DOS | 17 |
| Time Table of History DOS | 15 |
| Tool Works Reference Library | 18 |
| Tool Works Encyclopedia MPC | 40 |
| Total Baseball DOS/MAC | 17 |
| US Atlas v3.1 MPC | 14 |
| US History DOS/MAC | 17 |
| USA Wars: Civil War DOS/MAC | 26 |
| USA Wars: Vietnam DOS/MAC | 26 |
| USA Wars: WW II DOS/MAC | 26 |
| USA Wars: Korea | 26 |
| Wild Places DOS | 12 |
| Willy Bearnish The Adventure | 18 |
| Wing Command & Ult VI DOS | 17 |
| Wizard PC/MAC | 13 |
| World Atlas v3.2 MPC | 13 |
| World View DOS | 12 |

## CONTROLLERS

| | |
|---|---|
| IDE 2FD/2HD with 2S/1P/1G | $13 |
| IDE with I/O for VESA Local Bus | 34 |
| EISA SCSI Controller | 262 |
| Adaptec | |
| 1542C (SCSI) | 184 |
| 1542CK w/Kit (SCSI) | 230 |
| 1742A EISA (SCSI) | 328 |
| 2742 EISA (SCSI) | 308 |
| 2742TK EISA (SCSI) | 358 |
| BusLogic 742A EISA (SCSI) | 262 |
| BusLogic 445S VLB (SCSI) | 262 |
| DTC 2290 EISA IDE | 124 |
| DTC 2280 ISA IDE | 19 |
| DTC 2270 VLB IDE | 88 |
| DTC 3290 EISA SCSI | 424 |
| Promise DC-200 IDE Cache Controller | 96 |
| Promise DC-4030 VLB IDE Cache Controller | 128 |

## HARD DRIVES

| | |
|---|---|
| 40MB 25MS / 80MB 19MS IDE | $98 / 142 |
| 130MB 15MS IDE | 154 |
| 170MB 17MS / 212MB 15MS IDE | 164 / 188 |
| 250MB 15MS / 340MB 12MS IDE | 196 / 248 |
| 420MB 12MS / 540MB 12MS IDE | 348 / 448 |
| 200MB 15MS SCSI | 228 |
| 340MB 13MS SCSI | 328 |
| 520MB 12MS SCSI | 468 |
| 877MB 12MS SCSI | 698 |
| 1.2GB 13MS SCSI | 828 |
| 1.7GB 13MS SCSI | 1,108 |

## KEYBOARDS

| | |
|---|---|
| Focus | |
| FK2001 101-Key Click | $35 |
| FK9000 Programmable w/Calculator. | 55 |
| Keytronics 101-Key Enhanced | 29 |
| Mitsumi 101-Key Enhanced | 15 |
| Maxiswitch 101-Key Enhanced | 23 |
| Maxipro II Programmable | 58 |
| Northgate | |
| OMNI 101 NI / 102 | 62 / 62 |
| OMNI Ultra T or F | 84 |

## MATH COPROCESSORS

| | |
|---|---|
| 387DX-40 | $53 |
| 387DX-33 | 52 |
| 387SX-33 | 51 |
| 387SX-25 | 50 |

## MODEMS & FAXES

| | |
|---|---|
| 2400 Modem (w/9600 Send Fax) | $24 |
| Fax Modem (9600 Fax/2400 Modem) | 39 |
| Fax Modem (14,400 Fax/14,400Mdm) | 118 |
| Pocket Fax Modem (14,400/14,400) | 198 |
| Hayes | |
| Accura 14400 Fax Modem Int | 218 |
| Accura 14400 Fax Modem Ext | 244 |
| Optima 14400 Fax Modem | 358 |
| Intel | |
| 14.4 Fax Modem Int/Ext | 168 / 198 |
| 96/96 Fax Modem Int/Ext | 148 / 158 |
| US Robotics | |
| Sportster 9600 Modem Int | 144 |
| Sportster 14400 Modem Int | 148 |
| Sportster 14400 Modem Ext | 168 |
| Sportster 14400 Fax Modem Int | 158 |
| Sportster 14400 Fax Modem Ext | 176 |

## MONITORS

| | |
|---|---|
| 14" Mono Amber | $78 |
| 14" VGA Mono | 104 |
| 14" VGA (640•480) .51 | 170 |
| 14" Super VGA 1024•768 .39 | 188 |
| 14" Super VGA 1024•768 .28 Int | 222 |
| 14" Super VGA 1024•768 .28 NI | 242 |
| 15" Super VGA 1280•768 .28 NI | 338 |
| 17" Super VGA 1280•768 .28 NI | 628 |
| CTX | |
| 14" Super VGA 1024•768 .28 Int | 244 |
| 14" Super VGA 1024•768 .28 NI | 262 |
| CMS1561 15" 1024•768 .28 NI | 358 |
| CMS1561LR 15" 1024•768 .28 NI | 378 |
| CPS1760LR 17" 1280•1024 MPR II | 748 |
| Hitachi | |
| CM1584MV 15" 1280•1024 .28 NI | 444 |
| CM2095 20" 1280•1024 .28 NI | 1,278 |
| CM2187M 21" 1600•1280 Microp | 2,078 |
| MAG | |
| MX15F 15" 1280•1024 .28 NI | 454 |
| MX17F 17" 1280•1024 .26 NI (Original) | 868 |
| NANAO | |
| F340IW 15" 1024•768 .28 72Hz | 650 |
| F550I 17" 1280•1024 .28 NI | 978 |
| F550IW 17" 1280•1024 .28 75Hz | 1,054 |
| T560I 17" 1280•1024 .26 TRIN | 1,634 |
| T660I 20" 1280•1024 .31 72Hz | 2,388 |
| F750I 21" 1280•1024 .31 NI | 2,024 |
| NEC | |
| 3FGe 15" 1024•768 .28 NI | 570 |
| 4FGe 15" 1024•768 .28 NI | 670 |
| 5FGe 17" 1024•768 .28 NI | 1,054 |
| 6FG 21" 1280•1024 .28 NI | 2,294 |
| SONY | |
| 1304S 14" 1024•768 .25NI | 466 |
| 1430 14" 1024•768 .25 NI | 558 |
| 1604S 17" 1024•768 .25 NI | 888 |
| 1730 17" 1024•768 .25 NI | 954 |
| VIEWSONIC | |
| 4E 14" 1024•768 .28 Int | 260 |
| 5E 14" 1024•768 .28 NI | 352 |
| 5+ 14" 1024•768 .25 NI | 448 |
| 6E 14" 1024•768 .28 NI | 280 |
| 7 17" 1280•1024 .28 NI | 828 |
| 15 15" 1280•1024 .28 NI | 464 |
| 17 17" 1600•1280 .28 NI | 998 |
| 20 20" 1600•1280 .28 NI | 1,638 |
| 21 21" 1600•1280 .26 NI | 1,888 |

## MOUSE

| | |
|---|---|
| 3-Button Microsoft Compatible | $8 |
| Logitech | |
| Cordless | 84 |
| Mouseman Serial/Bus | 48 / 58 |
| Trackman | 74 |
| Scanman 256 | 218 |
| Microsoft Mouse Serial/Bus | 38 / 64 |

## NETWORK

| | |
|---|---|
| 8 BIT Ethernet Cards (NE1000 Compatible) | $40 |
| 16 BIT Ethernet Cards (10 Base-T/Coax) | 45 |
| 16 BIT Ethernet Cards (3-in-1 Combo) | 50 |
| 16 BIT Ethernet Cards (Pocket for Notebook) | 128 |
| 16 BIT Busmaster (NE2100 Compatible) | 84 |
| ANSEL | |
| P-NS2000-BA 10 Base-2 & AUI | 96 |
| P-NS2000-TA 10 Base-T & AUI | 86 |
| P-NS2000-3 10 Base-T & 2 & AUI | 108 |
| ARCnet | |
| 4-Port Passive Hub | 15 |
| 8-Port Active Hub | 108 |
| Bus Topology 8 BIT ISA Card | 44 |
| Bus Topology 16 BIT ISA Card | 54 |
| Star Topology 8 BIT ISA Card | 44 |
| Star Topology 16 BIT ISA Card | 54 |
| BootROM | |
| 8 BIT or 16 BIT Auto Boot PROM | 15 |
| Hubs and Repeaters | |
| 4-Port 10 Base T HUB | 128 |
| 12-Port 10 Base T HUB | 348 |
| 16-Port 10 Base T HUB | 438 |
| Daughter Card, 4 Additional RJ45 Ports | 58 |
| Daughter Card, BNC+AUI Ports | 48 |
| 2 BNC Ethernet Repeater | 194 |

## PRINTERS

| | |
|---|---|
| Citizen | |
| GSX-190 (9-Pin) | $158 |
| GSX-230 / GSX-240 (24-Pin) Quiet | 248 / 298 |
| GSX-145 (24-Pin) Wide | 378 |
| Color Option for Citizen Printers | 48/68 |
| Panasonic | |
| KX-P1150 (19-Pin) | 138 |
| KX-P1624 (24-Pin) Wide | 348 |
| KX-P2180 (9-Pin) | 155 |
| KX-P2023 (24-Pin) Quiet | 198 |
| KX-P2123 (24-Pin) Color Capacity | 216 |
| KX-P2124 (24-Pin) Color Capacity | 318 |
| KX-P2624 (24-Pin) Quiet Wide | 378 |
| Color Upgrade Kit KX-PCK11 | 48 |

## TAPE BACKUP

| | |
|---|---|
| Conner 250MB Int | $118 |
| Colorado | |
| DJ-10 Tape Back-up 120MB | 124 |
| DJ-20 Tape Back-up 250MB | 158 |
| KE-9 Ext. Kit for DJ-10/Dj-20 | 62 |
| Tape QIC-80 3M DC2120 | 18 |
| JT-10 Trakker 120MB Ext | 288 |
| JT-20 Trakker 250MB Ext | 336 |
| PT-25 Power Tape 2.4GB Int | 966 |
| PT-50 Power Tape 4GB Int | 1,478 |

## VGA CARDS

| | |
|---|---|
| VGA256K / SVGA 512K 16 BIT | $25 / 35 |
| SVGA 1MB 1024•768 16 BIT | 54 |
| Window Accelerators w/1MB | 56 |
| Cirrus Logic VLB w/1MB | 88 |
| Trident VLB w/1MB | 78 |
| ATI | |
| Graphics Ultra 1MB w/Mouse | 158 |
| Graphics Ultra Plus 2MB (ISA) | 234 |
| Graphics Ultra Plus 1MB (VLB) | 228 |
| Graphics Ultra Pro 2MB (ISA) | 308 |
| Graphics Ultra Pro 2MB (VLB) | 314 |
| Graphics Ultra Pro 2MB (EISA) | 356 |
| Diamond | |
| Speed Star Pro 1MB (ISA / VLB) | 106 |
| Stealth 24 VLB 1MB | 148 |
| Stealth Pro VLB 1MB (VRAM) | 248 |
| Stealth Pro VLB 2MB (VRAM) | 328 |
| Viper VLB 2MB | 358 |
| Genoa | |
| 8500 VLB 1MB | 98 |
| Number Nine (#9) | |
| Level 10 (ISA) | 294 |
| Level 12 (ISA / VLB) | 428 |
| Orchid | |
| Celsius 1MB / 2MB VLB | 218 / 288 |
| Fahrenheit 1MB (S3-801) ISA | 133 |
| Fahrenheit 1MB (S3-805) VLB | 133 |
| Fahrenheit 1MB (S3-801) VA ISA | 133 |
| Fahrenheit1MB (S3-805) VA VLB | 148 |

HOURS: Monday - Friday: 8:30am to 6pm / Saturday: 10am to 4pm

### TERMS AND CONDITIONS

- One year parts and labor warranty on systems.
- Knowledgeable technical support engineers in service.
- Prices and availability subject to change w/o notice.
- Shipping, insurance and COD charges are extra and non-refundable. Prices reflect cash discounts.
- Return shipping must be insured, prepaid and bearing an RMA# on the shipping label.
- Defective items replaced or repaired at our discretion.
- No responsible for typos.
- All returns subject to 15% restocking fee and cover only Hi-Tech USA brand computers, excludes peripherals and software. No refunds after 30 days.
- Superior reputation for service, quality and value.
- 0. Purchase orders are welcomed and subject to approval.

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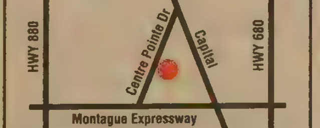

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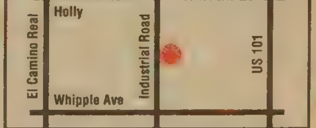

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# RESOURCES

# Calendar Of Events

## CONFERENCES, SHOWS, AND OTHER SPECIAL EVENTS

### OCTOBER

**October 16 The Computer Show And Sale.** San Mateo Expo Center. MarketPro. Call: (415)388-8893.

**October 16–17 Computer Show & Sale.** San Francisco Cow Palace. Richard James. Call: 1-800-685-1400.

**October 18–20 Microprocessor Forum: Technical Conference On High-Performance Microprocessors.** Hyatt Regency Hotel, San Francisco. MicroDesign Resources. Call: 1-800-527-0288.

**October 18–21 Global Competitiveness: Integrating Process, Information, And Technology Conference.** Salt Lake City, UT. IDEF Users Group. Call: (513)259-4702.

**October 18–22 Win-Dev 1993: International Developers Conference For Windows.** Santa Clara. Boston University. Call: (508)649-4200.

**October 19–21 Media Summit '93.** New York. Reed Exhibition Companies. Call: (203)352-8254.

**October 20 Presentation On *The Virtual Community* By Harvey Rheingold.** San Jose. Computer Literacy Bookshop. Call: (408)435-1118.

**October 20–23 Seybold San Francisco Conference And Exposition: The Evolving Process Of Communication.** San Francisco. Seybold Seminars. Call: 1-800-433-5200, ext. 1010.

**October 21 Lecture On The Covert Culture Sourcebook.** San Jose. Computer Literacy Bookshop. Call: (408)435-1118.

**October 21–22 Building For The Future: Computer-Based Financial Mangement Conference.** Boston. Harper and Shuman, Inc. Call: (415)543-5622.

**October 21–22 CorelDRAW! 4.0 Meeting.** Sunnyvale. Goals of California. Call: 1-800-462-5763, ext. 6625.

**October 21–22 Sources 1993: Keys To Asia's New Economies Convention.** Santa Clara. Asian American Manufacturers Association. Call: (415)321-5499.

**October 23 Computer Show & Sale.** Santa Clara County Fairgrounds. Richard James. Call: 1-800-685-1400.

**October 23 The Computer Show And Sale.** Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

**October 24 The Computer Show And Sale.** Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

**October 25 GeoWorks Developers Conference.** Burlingame. The Bohle Company. Call: (310)785-0459.

**October 26 Accounting Software Forum.** Burlingame. J.C. Lukrich & Co., CPA. Call: (415)905-6900.

**October 26–28 Common Desktop Environment Developers Conference.** San Jose Convention Center. UniForum. Call: Richard Jaross, (408)986-8840.

**October 26–28 COSE Developers Conference.** San Jose. Smith & Shows. Call: (508)879-6700.

**October 27 Lecture On Understanding Japanese Information Processing By Ken Lunde.** San Jose. Computer Literacy Bookshop.

*Continued*

## OCTOBER 19–20

### MICROPROCESSOR FORUM

***San Francisco Airport Hyatt Regency***

The Microprocessor Forum is an opportunity to preview all of the latest high-performance microprocessors, many described publicly for the first time. Sponsored by MicroDesign Resources, the sixth annual forum features debates and panel discussions by industry architects and visionaries, an industry awards ceremony, and half-day seminars held on October 18. Call: 1-800-527-0288.

## OCTOBER 20

### FREE LECTURE ON THE VIRTUAL COMMUNITY BY HOWARD RHEINGOLD

***Computer Literacy Bookshop, San Jose***

In his book ***The Virtual Community***, technology guru Howard Rheingold explores the potential danger linked with the commercialization and regulation of computer networks. The spontaneous grassroots growth of computer networks once signified the human need for connection in a detached society. Today, however, big private corporations like AT&T and IBM view computer networks as a potential source of enormous profits and the advertising medium of the future. Rheingold argues that although industry giants and the government pose a threat to computer networks, the citizens who created and maintain "the Net" still have the power to protect it. Call: (408)435-5015, ext. 117.

## OCTOBER 21–22

### SOURCES 1993: KEYS TO ASIA'S NEW ECONOMIES CONFERENCE

***Santa Clara Convention Center***

Sources 1993 clarifies the opportunities available for US businesses in the growing economies of Hong Kong, Taiwan, Singapore, Malaysia, and Vietnam. Topics include the incentives particular countries offer foreign businesses, how to find partners in Asia, and typical deal structures. Attendees meet potential Asian partners at the conference and learn from seasoned trans-Pacific business leaders. Sponsored by the Asian American Manufacturing Association, Sources 1993 offers exhibition space to conference registrants for an additional fee. Call: (415)321-AAMA.

## NOVEMBER 4–5

### 1993 TECHNOLOGY SUMMIT

***Burlingame Hyatt Regency Hotel***

The 1993 Technology Summit brings together Clinton Administration officials and executives from Genentech, INTEL, Pacific Bell, and other high-tech companies for a frank discussion of the administration's technology policy and economic reinvestment plans. The summit theme is the effort to shift national technology priorities from defense spending to commercial competitiveness. Day one consists of four industry-government roundtables; each discusses one major element of the administration's economic strategy, such as the National Information Infrastructure Initiative. Day two consists of panel discussions on the electronics, bio-medicine, and aerospace industries and on specific technology policy initiatives. The 1993 Technology Summit is sponsored by the Berkeley Roundtable On The International Economy and UC Berkeley Extension. Call: (510)642-4111.

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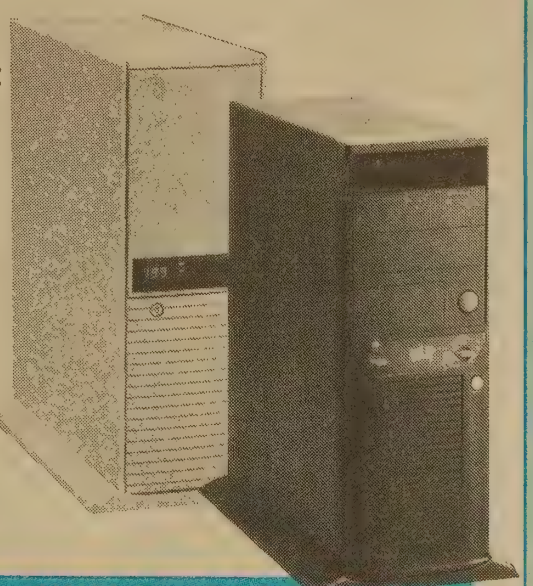
**VLB 486DX2-66/256K.........$1625**



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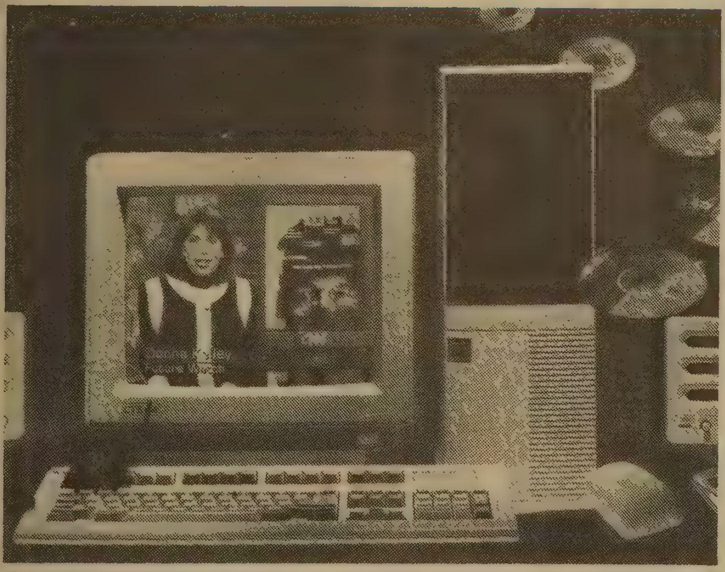

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| NEC 6FG 21" 1280x1024 | $CALL |
| Viewsonic 6e 14" 1024x768 | $CALL |
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| Viewsonic 20 20" 1600x1280 | $CALL |
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**VGA Cards**

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| Spider Plus VLB w/1MB | $109 |
| Spider Black Widow VLB w/1MB Vram | $199 |
| Orchid Fahrenheit VLB 1MB | 145 |
| Orchid Fahrenheit VA/VL 1MB | 195 |
| Orchid P9000 VLB 3MB | 365 |
| Diamond Speedstar pro 1MB | 110 |
| Diamond Stealth Pro 1MB | 245 |
| Diamond Viper VLB P9000 2MB | 375 |
| ATI Ultra Pro 2MB | 365 |

**Multi-Media**

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| Toshiba XM-3401 SCSI Int | $389 |
| Sony CD-ROM 31A | 165 |
| Mitsumi CD-ROM 005S | 165 |
| Gallant Sound Card SC5000 | 105 |
| Gallant Sound Card SC6000 | 145 |
| Speaker (80W) White/Black | 80 |
| CD Software (6 Titles) | 85 |

**Modems**

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| Fax/Data Modem 96/24 Int | $50 |
| Fax/Data Modem 96/24 Ext | 55 |
| Fax/Data Modem 14400/ 14400 Int | 150 |
| Fax/Data Modem 14400/ 14400 Ext | 165 |

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| Mini Tower w/230W | $45 |
| Mid Tower w/230W | 65 |
| Full Tower w/230W | 95 |
| Mid Tower w/Door 230W | 92 |
| Full Tower w/Door 250W | 110 |
| Mid Tower Black 230W | 95 |
| Full Tower Black 250W | 115 |

**Miscellaneous**

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|---|---|
| Full Page Scanner 600dpi | $599 |
| Colorado Tape Backup DJ-20 | 165 |
| Teac 1.2 Floppy Drive | 45 |
| Teac 1.44 Floppy Drive | 40 |

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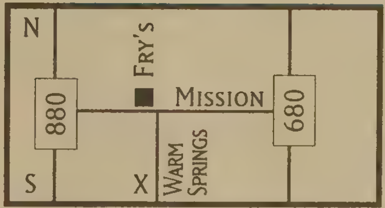

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## **Calendar Of Events** continued

Call: (408)435-1118.

**October 31 Computer Show & Sale.** Alameda County Fairgrounds. Richard James. Call: 1-800-685-1400.

**October 31 The Computer Show And Sale.** Cal Expo, Sacramento. MarketPro. Call: (415)388-8893.

### NOVEMBER

**November 1 Free Microsoft Project Presentation.** San Francisco. SF State Extension Call: (415)904-7710.

**November 2 Lecture On Fuzzy Logic By Bart Kosko.** San Jose. Computer Literacy Bookshop. Call: (408)435-1118.

**November 2–4 Email World: The Email Applications Conference And Expo.** Santa Clara. DCI. Call: (508)470-3880.

**November 4–5 1993 Technology Summit.** Santa Clara. UC Berkeley Extension. Call: (510)642-3112.

**November 6–7 Computer Show & Sale.** Oakland Coliseum. Richard James. Call: 1-800-685-1400.

**November 8 ATM TecForum.** Orlando, FL. ComForum. Call: (312)938-3500.

**November 9–10 Broadband: Achieving The Promise Forum.** Orlando, FL. ComForum. Call: (312)938-3500.

**November 11–12 Multimedia: Here And Now Forum.** Orlando, FL. ComForum. Call: (312)938-3500.

**November 13 Computer Show & Sale.** Santa Clara County Fairgrounds. Richard James. Call: 1-800-685-1400.

**November 13 The Computer Show And Sale.** San Mateo Expo Center. MarketPro. Call: (415)388-8893.

**November 14 Computer Show & Sale.** Rancho Arroyo Sports Complex, Sacramento. Richard James. Call: 1-800-685-1400.

**November 14 The Computer Show And Sale.** Sonoma County Fairgrounds. MarketPro. Call: (415)388-8893.

**November 15 AutoCAD Revisited Presentation.** San Francisco. SF State Extension. Call: (415)904-7710.

**November 16 Lecture On The Evolution Of C++ By Jim Waldo.** San Jose. Computer Literacy Bookshop. Call: (408)435-1118.

**November 20 Computer Show & Sale.** San Francisco Cow Palace. Richard James. Call: 1-800-685-1400.

**November 21 Computer Show & Sale.** Alameda County Fairgrounds. Richard James. Call: 1-800-685-1400.

**November 21 The Computer Show And Sale.** Centre Concord. MarketPro. Call: (415)388-8893.

**November 27 The Computer Show And Sale.** Solano County Fairgrounds. MarketPro. Call: (415)388-8893.

**November 28 The Computer Show And Sale.** Scottish Rite Center, Sacramento. MarketPro. Call: (415)388-8893.

## CLASSES, SEMINARS, AND WORKSHOPS

### OCTOBER

**October 16 Interviewing Skills For Foreign-Born Professionals Class.** Santa Clara. UC Extension, Santa Clara. Call: (408)748-7379.

**October 16 Intro To Microcomputers For DOS Seminar.** San Francisco. UltraVision. Call: (415)863-8407.

**October 16 Microsoft Powerpoint PC/Mac Class.** San Jose. InfoMind. Call: (408)243-1121.

**October 16 WordPerfect Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 16–17 & 23–24 Intro To AutoCAD For Windows Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**October 17 Advanced Quark Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 17 PageMaker On PC/Mac Class.** San Jose. InfoMind. Call: (408)243-1121.

**October 18 Automating Your Accounting And (Contact) Management Software Seminar.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**October 18 Beginning Excel Class.** Oakland. California Computer Options. Call: (510)444-5700.

**October 18 Beginning Illustrator Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 18 Harvard Graphics For Windows, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 18 Intermediate FoxPro For DOS/Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 18 Intermediate Word For Windows Class.** Oakland. Informational Data Networks. Call: (510)238-8380.

**October 18 Intro To The Mac Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 18 Microcomputer Operations And DOS Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 18 Music And Macromind Director Workshop.** San Francisco. Zakros InterArts. Call: (510)881-3605.

**October 18 Netware 3.11 (CNA) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 18 OS/2 Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 18 Word/Windows Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 18–19 PC Troubleshooting & Repair Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.

**October 18 & 20 Intro To Microsoft Excel Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**October 18–20 New High-Speed Communications Networks Class.** Burlingame. UC Berkeley Extention. Call: (415)323-8141.

**October 18–22 Information Systems Design Workshop.** San Francisco. Yourdon. Call: 1-800-234-8083.

**October 19 Access Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 19 Access 1.0, Level 1 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 19 Beginning Paradox For DOS/Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 19 Beginning PowerPoint Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 19 Beginning Word For Windows Class.** Oakland. California Computer Options. Call: (510)444-5700.

**October 19 Intermediate Excel For Windows Class.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**October 19 Intermediate WordPerfect For Windows Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

**October 19 Netware 3.11 (CNA) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 19 OS/2 Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 19 PageMaker II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 19 UNIX Direction And Strategy Seminar.** Sunnyvale. Novell. Call: (408)747-6070.

**October 19–20 Advanced Photoshop Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 19–21 Excel Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 19 & 21 Beginning PageMaker Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 19–22 2-D MicroStation Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**October 19–26 Director 1 Class.** San Francisco. Center for Electronic Art. Call: (415)956-6500.

**October 19–26 Photoshop 1 And 2 Class.** San Francisco. Center for Electronic Art. Call: (415)956-6500.

**October 19 & 26 Internetworking Class.** San Francisco. SF State ExtensioN. Call: (415)904-7700.

**October 19 & 26 WordPerfect Class.** San Mateo. Community Career Education Center. Call: (415)345-0753.

**October 19, 21, 26 & 28 Beginning Photoshop Class.** San Francisco. Ciber Training

Continued

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- 130MB Hard Drive
- SVGA Video Card
- 14" SVGA Monitor 1024x768
- Mini Tower Case With 230W Power Supply
- 101 Enhanced Keyboard

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- Mini Tower Case
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| 486/40/128K VLB w/CPU w/Bus Master | $ 215 |
| 486/33/128K VLB w/CPU w/Bus Master | $ 195 |
| 486/DX2/66/256K ISA w/CPU | $ 585 |
| 486/DX50/256K ISA w/CPU | $ 515 |
| 486/DX2/66/64K ISA w/CPU | $ 570 |
| 486/DX/50/64K ISA w/CPU | $ 500 |
| 486/40/64K ISA w/CPU | $ 190 |
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| 340MB 13MS IDE | $ 265 |
| 500MB 12MS IDE | $ 529 |
| 525MB 11MS SCSI | $ 539 |
| 1.2GB 10MS SCSI | $ 900 |
| 1.2GB 12MS SCSI II | $ 899 |
| 2.4GB 12MS SCSI | $1632 |
| IDE w/I/O VLB | $ 35 |
| SUPER IDE W/I/O VLB | $ 45 |
| IDE VLB CACHE up to 16MB | $ 135 |
| ADAPTEC 1522 SCSI/with KIT | $87/149 |
| ADAPTEC 1542C/1542CK SCSI | $195/254 |

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| MITSUMI CD-ROM | $ 163 |
| PANASONIC CR-562(300KB/SEC) | $ 229 |
| PANASONIC CR-522 | $ 175 |
| TOSHIBA 3401 INTERNAL | $ 379 |

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| 144/144 ZOLTRIX FAX/MODEM Exteranl | $ 175 |
| 144/144 US ROBOTICS FAX/MODEM Inter. | $ 169 |
| 144/144 US ROBOTICS FAX/MODEM Exter. | $ 190 |
| COLORADO DJ-10 120MB Tape Back-Up | $ 135 |
| COLORADO DJ-20 250MB Tape Back-Up | $ 175 |
| COLORADO 120MB TRACKER ext. Tape Back-Up | $ 299 |
| COLORADO 250MB TRACKER ext. Tape Back-Up | $ 329 |
| 3M DC2120 120MB Tape | $ 20 |
| 3 Button Serial Mouse | $ 11 |
| MS-MOUSE | $ 39 |

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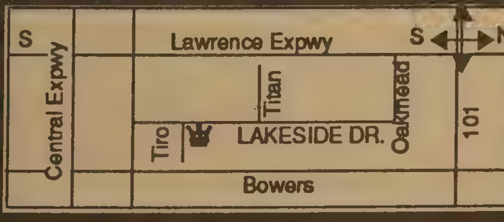

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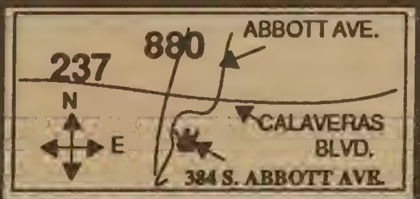

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SAT 10-6

* Prices, availability and terms are subject to change without notice

* Not responsible for typos
* Prices Above Reflect Cash Discount

## **Calendar Of Events** continued

Center. Call: (415)974-7206.

**October 19–November 11 Intro To AutoCAD For DOS Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**October 19–November 16 CrystalGraphics 3-D Topas Class.** San Francisco. Center for Electronic Art. Call: (415)956-6500.

**October 20 Adobe Illustrator I Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 20 Intermediate Paradox For Windows Class.** Oakland. Informational Data Networks. Call: (510)238-8380.

**October 20 Intermediate Word Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 20 LANServer 3.0 Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 20 Lotus Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 20 Microsoft Word For Windows, Level II Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 20 UNIX Direction And Strategy Seminar.** San Francisco. Novell. Call: (408)616-7411.

**October 20 Word 5.1/6.0 For DOS, Level 3 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 20 WordPerfect For DOS, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 20 WordPerfect For The Legal Profession Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

**October 20–22 Novell System Administrator 3.11 Class.** Oakland. California Computer Options. Call: (510)444-5700.

**October 20–27 Painter Class.** San Francisco. Center for Electronic Art. Call: (415)956-6500.

**October 20–November 17 FrameMaker Class.** Santa Clara. UC Extension, Santa Clara. Call: (408)748-7379.

**October 21 Advanced DOS Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 21 Advanced QuarkXPress Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 21 Intermediate Excel Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 21 Intermediate WordPerfect Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

**October 21 LANServer 3.0 Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 21 MS For Windows For Professionals Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 21 Quattro Pro Beginning Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 21 WordPerfect Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 21–22 Quark Project Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 21–22 SONET/ATM-Based Broadband Networks Class.** Burlingame. UC Berkeley Extension. Call: (415)323-8141.

**October 21–December 16 Audio/Visual Production For Video Games And The New Media Class.** San Francisco. SF State Extension. Call: (415)904-7700.

**October 22 Advanced Illustrator Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 22 Aldus Persuasion For Windows Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 22 Excel 4.0, Level 2 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 22 Intermediate Lotus 1-2-3 Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

**October 22 Intermediate Paradox For DOS/Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 22 Introduction To Networking Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 22 LANServer 3.0 Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 22 Microsoft Word II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 22 Multimedia For Professionals Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 22 Multimedia For Small Offices Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 22 Networks For Legal Professionals Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 22 Networks For Small Offices Seminar.** San Francisco. UltraVision. Call: (415)863-8407.

**October 22 Paradox For DOS, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 22 Windows For Workgroups Seminar.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**October 22–23 Intro To Multimedia In Education Lecture.** San Francisco. SF State Extension. Call: (415)904-7700.

**October 22–23 Publicity For Multimedia Lecture.** San Francisco. SF State Extension. Call: (415)904-7700.

**October 23 Build And Upgrade An IBM PC Clone Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.

**October 23 Fundamentals Of UNIX Seminar.** San Francisco. UltraVision. Call: (415)863-8407.

**October 23 The Fundamentals Of UNIX Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.

**October 23 Protecting Intellectual Property With Copyrights Seminar.** San Francisco. Cliff Hansen. Call: (415)693-9920.

**October 23 WordPerfect On DOS For Windows Class.** San Jose. InfoMind. Call: (408)243-1121.

**October 23 Word/Windows Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 23 & 30 Photoshop Intensive Workshop.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 24 Microsoft Word On PC/Mac Class.** San Jose. InfoMind. Call: (408)243-1121.

**October 25 Advanced FileMaker Pro Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 25 Introduction To Computers Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 25 Lotus 1-2-3 Macros (2.3) Class.** Oakland. California Computer Options. Call: (510)444-5700.

**October 25 Mac Basics Level II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**October 25 Netware 3.11 (CNA) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**October 25 Paradox For Windows, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 25 Windows Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

**October 25–26 Adobe Photoshop 2.5 Workshop.** Sacramento. Graphic Communications Assoc. Call: (703)519-8160.

**October 25–26 Asymetrix Toolbook For Windows Class.** San Francisco. SF State Extension. Call: (415)904-7700.

**October 25–27 Business Process Modeling And Analysis Seminar.** Santa Clara. DCI. Call: (508)470-3880.

**October 25–27 Intermediate Microsoft Excel Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**October 25 & November 1 FileMaker Pro Class.** San Mateo. Community Career Education Center. Call: (415)345-0753.

**October 26 Advanced FoxPro For DOS/Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**October 26 Advanced Freehand Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 26 Beginning Microsoft Access Class.** Oakland. California Computer Options. Call: (510)444-5700.

**October 26 Beginning Word Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**October 26 Intermediate Paradox For DOS Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

*Continued*

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|---|---|---|---|---|---|---|
| MB w/Internal Clock Calendar CPU,Mini or At Case w/230W IDE:2Fd/2Hd w/1P,2S,1Game 1.2or1.44 Fd,101KB&1Mb Ram | Basic Config.+Total 4Mb Ram Total 1.2&1.44 Fd +Mouse&Pad and Your Option A,B,C orD | | Basic Conf.+Total 4Mb Ram,+1.2 Fd &,1.44, Monitor: SVGA14 "IN, (1024x768),Video T512k, Hd 120Mb | Basic Conf+Total 4Mb Ram&1.2+ 1.44Fd,.28 Dp,NI 14"(1024X768) SVGA, Trident 1Mb 170Mb Conner Hd | Basic Con+4Mb Ram 1.2&1.4Fd,.28Dp V6E (1024X768) NI Video:Luminar 1Mb 16 Million Colors 250 Mb Hd | Basic System Conf. + Total 8 Mb Ram+ Total 1.2&1.4Fd Video not included Monitor:15"Mag or V15(1280x768),.28D 340 Mb Hd |
| **SYSTEM** | **MB&CPU** | **BASIC SYS.** | | | | |
| 386DX-40/128K ISA | $ 119 | $ 253 | $ 832 | $ 889 | $ 949 | $ 1297 |
| 486DX-33/128K ISA | $ 355 | $ 495 | $ 1074 | $ 1122 | $ 1191 | $ 1541 |
| 486DX-50/128K ISA | $ 485 | $ 635 | $ 1214 | $ 1262 | $ 1330 | $ 1681 |
| 486DX2-50/128K ISA | $ 406 | $ 549 | $ 1132 | $ 1176 | $ 1245 | $ 1594 |
| 486DX2-66/128K ISA | $ 555 | $ 693 | $ 1269 | $ 1319 | $ 1385 | $ 1737 |
| 486DX-40/256K ISA | $ 405 | $ 592 | $ 1129 | $ 1165 | $ 1332 | $ 1574 |
| 486DX-33/128K VLB | $ 373 | $ 509 | $ 1100 | $ 1155 | $ 1211 | $ 1559 |
| 486DX-50/128K VLB | $ 515 | $ 649 | $ 1236 | $ 1295 | $ 1349 | $ 1699 |
| 486DX2-50/128K VLB | $ 424 | $ 561 | $ 1153 | $ 1202 | $ 1264 | $ 1614 |
| 486DX2-66/128K VLB | $ 579 | $ 709 | $ 1296 | $ 1349 | $ 1403 | $ 1756 |
| 486DX-33/256K ORCHID VLB | $ 412 | $ 563 | $ 1139 | $ 1184 | $ 1252 | $ 1604 |
| 486DX-50/256K ORCHID VLB | $ 554 | $ 703 | $ 1278 | $ 1322 | $ 1396 | $ 1744 |
| 486DX2-66/256K ORCHID VLB | $ 616 | $ 754 | $ 1329 | $ 1379 | $ 1449 | $ 1799 |
| 486DX-33/256K EISA/VLB(NICE) | $ 499 | $ 645 | $ 1224 | $ 1269 | $ 1339 | $ 1690 |
| 486DX-50/256K EISA/VLB (NICE) | $ 637 | $ 784 | $ 1363 | $ 1409 | $ 1479 | $ 1829 |
| 486DX2-66/256KEISA/VLB(NICE) | $ 698 | $ 839 | $ 1418 | $ 1463 | $ 1532 | $ 1886 |

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130MB(IDE)MAXTOR...$179
170MB(IDE)CONNER....$173
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250MB(IDE)CONNER....$220
340MB(IDE)MAXTOR...$309
540MB(IDE)MAXTOR...$680
520MB(SCSI-FUJ.)...........$725
120MB(DJ-10)COLORADO.....$145
250MB(DJ-20)COLORADO.....$179
1.2GB MAXTOR(SCSI)...$975

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I/O W/1P,2S,1G......................$12
PARALLEL CARD...............$12
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DC 4030 VLB UP TO 16MB.....$165

### ULTRASTOR

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UL34F SCSI/VLB32k Cache$280

### ADAPTEC

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1742A SCSI/EISA/+KIT.$350/415

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V4E:14".28dp IN...................$270
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V15/V17/V20.....$465/1070/1700

### SONY

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CPD-1730 17" .25dp..................$995
GDM-2036S 20" .30dp............$1969
GDM-2038 20" .30dp..............$2249

### NEC

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5FGE 17" ,28dp....................$1090

### NANAO

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F550I 17",.28dp(1280x1024).$1015
F550IW 17",.28dp(27-65khz)$1080
T560I 17".26dp(30-78khz).....$1670
F750I 21".31dp(1600x1280)..$1933
F760IW 21".31dp(27-78khz),(1280x1024)................$2048

### MAG InnoVision

LX1564 15".28dp (1280x768).$449
LX15F 15" .28dp (1280X768)..$465
LX17 F 17" .26dp (1280x1024).$960

### HITACHI American Limited

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CM2087 20".31Dp(NI).$1585

### SAMSUNG(OEM)

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14" SVGA 1024X768.(NI)...........$265

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GENOA VLB 1MB...............$105
SPIDER VLB 1MB/2MB.$94/143
SPIDER + 1MB/2MB.....$109/165
BLACK WIDOW 1/2MB$199/260

### ORCHID

PRO DESIGNER IIS 1MB....$125
FARENHEIT 1280(ISA)1MB$135
FARENHEIT VLB 1MB.......$146
FARENHEIT VA 1MB.........$189
P9000 VLB.........................$339

### DIAMOND

SPEEDSTAR PRO 1MB.......$118
STEALTH 24 ISA/VLB.$155/165
STEALTH PRO VLB 2MB...$299
VIPER VLB 2MB................$377

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101 ENHANCED KB............$19
MAXISWITCH KB...............$29
KEYTRONIC KB.................$32
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14.4/14.4(GVC)W/WINFAX..$149

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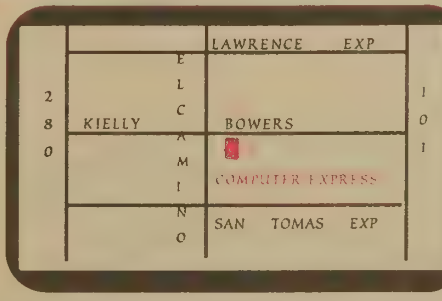

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- •SVGA CARD W/1MB
- •14" SVGA MONITOR .28
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
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- •IDE 2H/2F
- •2S/1P/1G PORTS
- •SVGA CARD W/1MB
- •14" SVGA MONITOR .28
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

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**ISA**

- •CYRIX 486 CPU
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- •IDE 2H/2F
- •2S/1P/1G PORTS
- •SVGA CARD W/1MB
- •14" SVGA MONITOR .28
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

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- •4 MB RAM UP TO 32 MB
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- •2S/1P/1G PORTS
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- •14" SVGA MONITOR .28
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

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**LOCAL BUS**

- •INTEL 486 CPU
- •256K CACHE
- •4 MB RAM UP TO 32 MB
- •1.2 TEAC & 1.44 TEAC FD
- •212 W.D. IDE 12ms HD
- •32 BIT VLB w/1 MB VIDEO CARD
- •2H/2F CONTROLLER
- •2S/1P/1G PORTS
- •14" SVGA MONITOR .28 NI
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

**$1563/1358**

## 486DX2-50/DX-50
**LOCAL BUS**

- •INTEL 486 CPU
- •256K CACHE
- •4 MB RAM UP TO 32 MB
- •1.2 TEAC & 1.44 TEAC FD
- •212 W.D. IDE 12ms HD
- •32 BIT VLB w/1 MB VIDEO CARD
- •2H/2F CONTROLLER
- •2S/1P/1G PORTS
- •14" SVGA MONITOR .28 NI
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

**$1457/1498**

## 486DX-40
**LOCAL BUS**

- •AMD 486 CPU
- •256K CACHE
- •4 MB RAM UP TO 32 MB
- •1.2 TEAC & 1.44 TEAC FD
- •212 W.D. IDE 12ms HD
- •32 BIT VLB w/1 MB VIDEO CARD
- •2H/2F CONTROLLER
- •2S/1P/1G PORTS
- •14" SVGA MONITOR .28 NI
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

**$1430**

## 486-33 DLC
**LOCAL BUS**

- •CYRIX 486 CPU
- •256K CACHE
- •4 MB RAM UP TO 32 MB
- •1.2 TEAC & 1.44 TEAC FD
- •212 W.D. IDE 12ms HD
- •32 BIT VLB w/1 MB VIDEO CARD
- •2H/2F CONTROLLER
- •2S/1P/1G PORTS
- •14" SVGA MONITOR .28 NI
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE

**$1195**

## 486-33DX
**MULTIMEDIA**

- •INTEL 486 CPU
- •256K CACHE
- •4 MB RAM UP TO 32 MB
- •1.2 TEAC & 1.44 TEAC FD
- •212 W.D. IDE 12ms HD
- •32 BIT VLB w/1 MB VIDEO CARD
- •2H/2F CONTROLLER
- •2S/1P/1G PORTS
- •14" SVGA MONITOR .28 NI
- •101 ENHANCED KEYBOARD
- •MINI-TOWER/220 W PS
- •HI-RES MOUSE
- •TOSHIBA XM-3401 CD ROM
- •PRO-AUDIO 16 SOUND CARD

**$1926**

## 486DX2-66/DX-33
## MICRONICS

- •256K CACHE
- •8 MB-70 EXP TO 64 MB
- •PHOENIX BIOS
- •2 VESA, 6 ISA
- •32 BIT ORCHID VLB CONTROLLER
- •1.2 & 1.44 MB TEAC FD
- •MED TOWER 230 PS
- •MAXI OR MITSUMI KEYBOARD
- •ATI-ULTRA PRO 2 MB VRAM VIDEO CARD MACH 32

**$1845/1655**

## 486DX2-66/DX-33
## AMI

- •256K CACHE
- •8 MB-70 EXP TO 64 MB
- •AMI BIOS
- •2 VESA, 6 ISA
- •32 BIT ORCHID VLB CONTROLLER
- •1.2 & 1.44 MB TEAC FD
- •MED TOWER 230 PS
- •MAXI OR MITSUMI KEYBOARD
- •LEVEL II 2 MB VRAM S3 928 GUI ACCELERATOR

**$1910/1720**

## 486DX2-66/DX-33
## DIAMOND

- •256K CACHE
- •8 MB-70 EXP TO 128* MB
- •DIAMOND BIOS
- •2 VESA, 6 ISA
- •32 BIT ORCHID VLB CONTROLLER
- •1.2 & 1.44 MB TEAC FD
- •MED TOWER 230 PS
- •MAXI OR MITSUMI KEYBOARD
- •DIAMOND VIPER 2 MB VRAM WEITEK P9000

**$1710/1510**

## 486DX2-66/DX-33
## ORCHID

- •256K CACHE
- •8 MB EXP TO 64 MB
- •AMI BIOS
- •2 VESA, 6 ISA
- •32 BIT ORCHID VLB CONTROLLER
- •1.2 & 1.44 MB TEAC FD
- •MED TOWER 230 PS
- •MAXI OR MITSUMI KEYBOARD
- •ORCHID CELSIUS 9000 3 MB VRAM WEITEK P9000

**$1630/1430**

## 486DX2-66/DX-33
## MICROCENTER

- •256K CACHE
- •8 MB EXP TO 64 MB
- •PHOENIX BIOS
- •2 VESA, 6 ISA
- •32 BIT ORCHID VLB CONTROLLER
- •1.2 & 1.44 MB TEAC FD
- •MED TOWER 230 PS
- •MAXI OR MITSUMI KEYBOARD
- •DIAMOND VIPER 2 MB VRAM WEITEK P9000

**$1540/1350**

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## MOTHERBOARDS

### AMI

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|---|---|
| Super Voyager 486-33 256K VLB | $845 |
| Super Voyager 486-50 256K VLB | 965 |
| Super Voyager 486 DX2-66 VLB | 1150 |
| Enterprise II 486-50 EISA 128K | 1095 |
| Enterprise III 486-33 256K VLB EISA | 970 |
| Enterprise III 486-50 256K VLB EISA | 1165 |
| Enterprise III 486DX2-66 256K VLB EISA | 1295 |

### MICRONICS

| | |
|---|---|
| 486-50 256K Cache EISA E2 | $1150 |
| 486-33 Local Bus 256K Cache | 650 |
| 486DX2-50 Local Bus 256K Cache | 765 |
| 486DX2-66 Local Bus 256K Cache | 875 |
| 486-33 256K EISA VLB | 995 |
| 486DX2-50 256K EISA VLB | 1150 |
| 486DX2-66 256K EISA VLB | 1295 |

### ORCHID (w/o CPU)

| | |
|---|---|
| Superboard 486 (VLB VGA & Controller) DX33/DX50/DX2-66 256K | $225/230/225 |

## DRIVES

| | |
|---|---|
| Conner CP30204 212 MB 12ms IDE | $198 |
| Conner CP30254 250 MB 14ms IDE | 225 |
| Conner CP30544 540 MB 12ms IDE | 575 |
| Fujitsu M2624T 520 MB 12ms IDE | 698 |
| Maxtor 7245AT 245 MB 15ms IDE | 220 |
| Maxtor 7345A 340 MB 13ms IDE | 295 |
| Quantum LPS240 240 MB 15ms IDE | 240 |
| Quantum LPS525A 525 MB 13ms IDE | 565 |
| Western Digital WD2200 212 MB 12ms IDE | 198 |
| Western Digital WD2250 250 MB 14ms IDE | 225 |
| Western Digital WD2340 340 MB 13ms IDE | 285 |
| Fujitsu M2623SA 425 MB 11ms SCSI | 635 |
| Fujitsu M2624F 520 MB 11ms SCSI | 726 |
| Fujitsu M2694SA 1.2 GB 10ms SCSI | 1065 |
| Fujitsu M2652SA 2.0 GB 11ms SCSI | 1867 |
| Fujitsu M2654SA 2.4 GB 12ms SCSI | 2410 |
| Quantum LPS525S 525 MB 13ms SCSI | 737 |
| Toshiba 877 MB 12ms 512K Cache SCSI-2 | 850 |
| Toshiba 1.2 GB 12ms 512K Cache SCSI-2 | 985 |
| LXT 7213S 200 MB 15ms SCSI 3.5" | 265 |
| 540SL 540 MB 8.5ms SCSI-2 1" HT | 852 |
| MXT 1240S 1.2 GB 8.5ms SCSI-2 3.5" | 1150 |
| PO-12 1.2 GB 13ms SCSI | 975 |
| Optical Drives: Rewritable 1 GB 35ms SCSI Ext Tahiti II/1 GB Cartridge Glass | 1750/145 |

## CONTROLLER CARDS

### ULTRASTOR

| | |
|---|---|
| ULT 15C IDE 8MB 256K Cache | $193 |
| ULT 14F ISA SCSI 32K Cache | 213 |
| ULT 24F SCSI EISA 64K Cache | 372 |
| ULT 34F VL BUS SCSI-2 32K Cache | 283 |

### ADAPTEC

| | |
|---|---|
| 1542C SCSI w. Kit (10MB) | $245 |
| 1542C Plus w. ASW 500 | 313 |
| 1640 SCSI w. Kit for MCA | 332 |
| 1742A SCSI EISA w. Kit (2F/2H) | 421 |
| ASW-1410 ASPI MS-DOS Manager 3.0 | 69 |
| ASW-EZ SCSI for DOS & WIN | 67 |
| ASW-310 Sy-Tos Plus (Tape Back-Up S/W) | 95 |

### AMI

| | |
|---|---|
| FastDisk Cache SCSI EISA (up to 16MB) | $485 |
| FastLan Ethernet-SCSI VLB | 462 |

### DTC

| | |
|---|---|
| 2290 IDE EISA | $135 |
| 3280AS SCSI | 103 |
| 3290AS EISA SCSI Host Adapter | 475 |

### MYLEX

| | |
|---|---|
| DE 376 EISA SCSI w/4 MB Cache | $722 |

## VGA CARDS

### ATI

| | |
|---|---|
| Graphics Ultra Pro 2 MB (VRAM) ISA | $345 |
| Graphics Ultra Pro 2 MB w/Mouse | 399 |
| Graphics Ultra Pro 2 MB VRAM VLB | 352 |
| Graphics Ultra Pro 2 MB EISA | 462 |

### DIAMOND

| | |
|---|---|
| Stealth 1 MB (VRAM) w/Sierra Hi-Color | $197 |
| Stealth 24 1 MB (DRAM) 16 Million Color | 176 |
| Stealth 24 1 MB (DRAM) VLB | 186 |
| Stealth Pro (VRAM) 1 MB/VLB | 255/265 |
| Stealth Pro (VRAM) 2 MB/VLB | 355/365 |
| Viper VLB P9000 (VRAM) 2 MB | 355 |

### ORCHID

| | |
|---|---|
| Fahrenheit VA/VLB w. Voice Annotation 24 Bit | $199 |
| Fahrenheit VLB VESA 1 MB 24 Bit | 165 |
| Fahrenheit 1280 (DRAM) 1 MB | 159 |
| Celcius VLB 1 MB | 235 |
| Fahrenheit P9000 VLB 3 MB | 355 |
| ProDesigner IIs 1 MB, w. Hi-Color | 145 |

### MYLEX

| | |
|---|---|
| GLE911 1 MB 1280x1024 EISA | $398 |
| GXE020B 4 MB (DRAM)1280x1024 2 MB VRAM TMS34020 Tiga/EISA | 1035 |

### NUMBER NINE

| | |
|---|---|
| #9 GXe 1280x1024 90Hz S3-928 Chip | |
| -Level 10VRAM ISA 1 MB | $285 |
| -Level 11 VRAM ISA 2 MB | 385 |
| -Level 11 VRAM VLB 2 MB | 395 |
| -Level 12 VRAM ISA 3 MB | 492 |
| GXI Lite L20 TIA, WIN 1280-16 Color | 565 |
| GXI Lite L21 CAD WIN 1280-16 Color | 725 |
| GXI Level 24 CAD WIN 1280x1024 256 | 1279 |
| GXI TC-Level 29 24 Bit 1280x1024 256 Color at 72 Hz 4 MB (VRAM) 1 MB DRAM | 1495 |
| ET4000 Tseng Lab 1 MB | 95 |
| ET4000 Tseng Lab VLB 1 MB | 129 |
| Oak 067 Super VGA 512K | 52 |
| Oak 077 Super VGA 1 MB | 65 |
| STB Super VGA 1 MB | 99 |

### AMI

| | |
|---|---|
| FastView EISA VGA Graphics 1 MB | $269 |
| FastView P9000 VLB 2 MB | 395 |

### OTHERS

| | |
|---|---|
| Artist XJS 12-16 | $2190 |
| Artist XJS Lite | 1485 |
| Artist Winsprint 100+ | 442 |
| Artist Winsprint 150+ | 543 |
| Hercules GS Gold 16 | 393 |
| Hercules Graphite | 342 |
| Metheus 1104+16/256 | 992/1085 |
| Metheus Premire 1MB/2MB | 372/565 |
| Matrox 1024 | $CALL |
| Matrox Impression AT | $CALL |
| TrueVision 1024/32 | 1585 |
| TrueVision 1024P/24 | 1285 |
| Rasterex Tracer 1280 | 2685 |
| Spea 1280 | 1685 |

## MONITORS

### MAG (AutoSwitch Power Supply)

| | |
|---|---|
| PM 1558 14" 1024x768 .28NI | $365 |
| MS15F 15" Flat 1280x1024 .28 NI Mac II | 490 |
| MS17F 17" Flat 1280x1024 .26 NI Mac II | 916 |
| Mac Adapter | 25 |

### MITSUBISHI

| | |
|---|---|
| HL6955SETK 20" 1280x1024 .31 NI | $1745 |
| Diamond Pro 17" 1280x1024 .26NI Trinitron MAC II 100-240v | 1075 |
| BNC Cable | 39 |

### NANAO (100-240v)

| | |
|---|---|
| F340W 15" Full Flat Screen 1024x768 .28 | $653 |
| T560I 17" 1280x1024 .25 NI Mac II | 1635 |
| F55IW 17" 1280x1024 .28 NI Mac | 1066 |
| T660I 20" 1280x1024 .31 NI Trin Mac II | 2395 |
| F750I 21" 1280x1024 .31 NI Mac II | 2025 |
| Mac II Cable Adapter | 69 |

### NEC (120v)

| | |
|---|---|
| 4FGe 15" Flat 1024x768 .28 NI Mac | $672 |
| 5FGe 17" 1024x768 .28 NI (no Accu color) | 1070 |
| 6FG 21" Flat 1280x1024 .28 Mac | 2295 |
| NEC Monitor Lens (Anti-Reflection & Static) for 4FG/5FG/6FG | 74/115/185 |
| FG/MacII Cable Adapter Kit | 19.50 |

## MONITORS

### VIEWSONIC

| | |
|---|---|
| 4E 14" 1024x768 .28 Int 110/220V | $264 |
| 5+ 14" 1024x768 .25 NI Mac II | 365 |
| 5e 14" 1024x768 .28 NI Mac II | 353 |
| 6e 14" 1024x768 .28 NI | 284 |
| 6FS 15" 1024x768 .28 NI 90/264v | 535 |
| 15 15" 1280x1024 .28 NI Mac II | 496 |
| 7 17" 1280x1024 .28 NI Mac II | 860 |
| 17 17" 1280x1024 .28 NI Mac II | 1040 |
| 20 20" 1600x1280 .28 NI MacII | 1645 |

### SONY

| | |
|---|---|
| 1430S 14" 1024x768 NI 120v | $560 |
| 1604S 17" 1024x768 .25 NI 100-240v | 888 |
| 1730 17" 1024x768 .25NI | 964 |
| 3028 20" 1280x1024 .30 NI | 2295 |

## PRINTERS

### PANASONIC

| | |
|---|---|
| 1123/1124i/1624 | $185/255/345 |
| -Auto Sheet Feeder for 1124 KX-P36 | 120 |
| 2023 24 pin quiet printer | 199 |
| 2123 24 pin 43.5dBA color capability | 239 |
| 2124 24 pin 43.5dBA color capability | 319 |
| 2624 24 pin quiet printer 46.5dBA | 375 |
| 2180 9 pin 45 dBA color capability | 159 |

### CANON

| | |
|---|---|
| BJ-200 (after rebate) | $295 |
| BJ-300 desktop | 349 |

### HP (HEWLETT PACKARD)

#### LaserJet w/Toner

| | |
|---|---|
| Desk Jet 500/500C/550C | $369/489/699 |
| LaserJet IIIP | 839 |
| LaserJet 4/4M/4L/4SI | 1359/1865/685/3295 |

## TAPE BACK-UP

### (<500 MB TAPE BACK-UP)

| | |
|---|---|
| Colorado 120/250 MB | $145/197 |
| Colorado KE-10 Ext kit w/card | 105 |
| Colorado Ext Port card | 37 |
| FC-10 High Perf Card | 85 |
| Colorado Trakker 120/250 MB | 344/404 |
| Summit Express 305 MB 10MB/sec | 264 |
| Archive Viper 250 MB hh SCSI I/E | 349/CALL |
| Archive Viper 250 MB w/QIC 15MB/min 1"H | 179 |
| w/Central Point SW add | 20 |
| Viper 525 MB hh SCSI Int/Ext 6MB/sec | 549/950 |

### (>500 MB for PC/SERVER)

| | |
|---|---|
| Colorado 700 MB | $689 |
| FC-15 high perf card | 181 |
| Colorado 2.4/4.0 GB Qic 5.25 | 969/1499 |
| YE Data1.2GB SCSI DAT | 529 |
| Python 4(8)GB 3.5" DAT SCSI .5m I/E | 1195/1587 |
| HP 2GB DAT 4mm Int/Ext | 1095/1245 |
| HP 5GB DAT 4mm Int/Ext | 1320/1475 |
| Maynard 2GB 4mm DAT Int/Ext | 1890/2060 |
| Mount FS1200 4mm DAT HH Int/Ext | 1840/2133 |
| Exabyte 2GB 8mm DAT HH Int/Ext | 1485/1815 |
| Exabyte 8250 5GB HH 2hrs Int/Ext | 1795/1875 |
| Exabyte 8505 10GB HH 2yrs Int/Ext | 2475/2770 |

(above drives require special cont & soft drivers)

## TAPE BACK-UP DRIVERS

### NOVASTAR

| | |
|---|---|
| Novaback for DOS | $89 |
| Novaback for OS/2 | 89 |
| Novanet Multiuser NLM | 439 |
| Sytos for DOS/Novell, Gen | 185 |
| ARCserve Solo | 185 |

## MULTIMEDIA

| | |
|---|---|
| NEC CD-ROM 84/74 (280ms) | $420/570 |
| Mitsumi CD-ROM (350ms) w/Card | 185 |
| Panasonic CR-522 (380ms) | 205 |
| Toshiba XM-3401 Int/Ext | 420/520 |
| Creative Labs Sound Blaster Pro Deluxe | 120 |
| Creative Labs Sound Blaster 16 ASP | 198 |

## MODEMS

### US ROBOTICS

| | |
|---|---|
| Courier 144 v.32bis v.42 MNP5 Int | $372 |
| Courier 144 v.32bis v.42 MNP5 Ext | 375 |
| Courier 144 w/Fax Ext | 395 |
| Courier HST-DS 144 v.32bis v.42 MNP EXT | 725 |
| Sportster 96 Modem MNP5 Int/Ext | 149/159 |
| Sportster 96/96 Fax Int/Ext | 159/159 |
| Sportster 14.4/14.4 Fax MNP5 Int/Ext | 175/195 |
| Sportster 14.4/14.4 Fax for Mac Ext | 225 |
| Shared Access Modem Sharing Kit | 672 |

## PLOTTERS/DIGITIZERS

### HOUSTON INSTRUMENTS

| | |
|---|---|
| Im Maker 1117 A/B Pen HPGL | $632 |
| DMP-161 A-D 8 Pen HP-GL/2 | 2625 |
| DMP-162 A-E 8 Pen HP-GL/2 | 3495 |
| DMP-162R A-E 8 Pen Roll Med | 3975 |
| V50 (InkJet A-C Size) New | 1405 |

## CALL FOR OTHER PRODUCTS NOT LISTED

### DIGITIZERS

### SUMMAGRAPHICS

| | |
|---|---|
| III 12x12 w/16btn 4bt & Pen | $305 |
| III 12x18 w/16btn or 4bt & Pen | 545 |

### KURTA

| | |
|---|---|
| XLP 12x12 w/4btn & Pen | $245 |
| XLP 12x18 w/16btn or 4btn Pen | 520 |
| IS/ONE 12x12 4btn/12btn/Pen | 329 |
| IS/ONE 12x17 4btn/12btn/Pen | 530 |
| (IS/ONE also available w/Cordless 4btn or pen) | |
| XLC 24x36 | 1260 |
| XLC 18x24 | 1070 |

### CALCOMP

| | |
|---|---|
| 12x12 | $279 |
| 12x18 | 629 |
| 18x24 | 1275 |
| 6x9 P Series | 439 |
| 12x12 P Series | 485 |

## SCANNERS

### MICROTEK

| | |
|---|---|
| Scanmaker II 1200dpi Max | $850 |
| Scanmaker IIXE 1200dpi Max | 1130 |
| Scanmaker 1850 1850dpi Max | 1360 |
| MS-II OCR Scanner | 669 |
| ADF-600 Auto Sheet Feeder | 480 |
| Scanmaker 45T for transparencies | NEW |

## NETWORKING

| | |
|---|---|
| Netware Lite 1.1 + DR DOS 6 | $65 |
| Netware Lite w. Win Utilities | 75 |
| Netware 2.2 | |
| -5/10/50/100 User | 489/1089/1995/2945 |
| Netware 3.11 | |
| -5/10/20 User | 599/1345/1885 |
| -50/100/250 User | 2650/3859/6885 |
| Netware 4.0 | |
| -5/10/25 User | 935/2095/2895 |
| -50/100/250 User | 3915/5495/9675 |

### SMC (Western Digital)

| | |
|---|---|
| Ethernet Plus Elite 8 Bit Coax | $115 |
| Ethernet Plus Elite 16 Coax/16 TP | 139/145 |
| Ethernet Plus Elite 6 pack 16 Coax/16 Tp | 725/750 |
| 3016 16 Bit Coax/16 Bit TP | 145/149 |
| Ethernet Elite 16 combo/6 pk | 175/840 |
| Ethernet Plus/A for MCA/TP | 215/219 |
| Ethernet Elite 32 bit Coax/TP | 650/660 |
| Netware Boot ROM for Ethernet | 34 |
| 8 Port Concentrator (8TP+1AUI) | 339 |
| 12 Port Concentrator (12TP+2AUI+1BNC) | 595 |
| Token Ring 16/4 ISA/MCA | 379 |
| WD-8003 EP Ethernet Plus Elite 8 Bit Coax | 49 |
| WD Lan ETP8 Bit (cabl included) | 39 |
| WD Lan-10T/A for MCA (cable included) | 65 |

## POWER SUPPLIES

### AMERICAN POWER CONVERSION (UPS)

| | |
|---|---|
| APC-400 Smart UPS (286,386 WS) | $309 |
| APC-600 Smart UPS (386 486 FS) | 399 |
| APC-900 Smart UPS (486 486 FS & WS) | 639 |
| APC-1250 Smart UPS (multiple FS & WS) | 799 |
| APC-450 Back UPS 286 PS/2 386 | 235 |
| APC-600 Back UPS 286 386 FS | 285 |
| APC-800 Back UPS 800RT 2-4ms 15min | 565 |
| APC-750 On-Line UPS (286,286,486 FS) | 1365 |
| APC-1500 On-Line UPS (multiple servers) | 2499 |
| APC PowerChute Plus for Novell | 79 |
| APC UPS Monitoring Board for Netware | 69 |
| Power Doctor (DOS) I/F kit for Smart-UPS | 79 |

### PC POWER COOLING

| | |
|---|---|
| Standard 220 for desktop/full tower | $85 |
| Silencer 270 | |
| -for slim, baby or mid tower | 143 |
| -for AT desktop/full tower | 163 |
| Turbo-Cool | 300 |
| -for slim | 145 |
| -for desktop/full tower | 120 |
| Turbo-Cool 450 for desktop/full tower | 312 |
| InnerSource 2210 UPS for full tower, Int 95-132v 220W DC, 100W AC=550VA Ext UPS | 299 |
| Novell Netware Interface | |
| -for InnerSource 2210 UPS | 55 |

### TRIPP LITE

| | |
|---|---|
| BC 500 LAN (UPS 350W) | $215 |
| BC 900 LAN (UPS 650W) | 363 |
| Omni 450 LAN (UPS 325W + Line Regulation) | 295 |
| Omni 600 LAN (UPS 425W + Line Regulation) | 385 |

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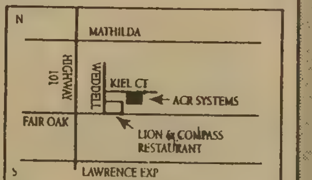

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## **Calendar Of Events** continued

**October 26 Lotus 1-2-3 For DOS, Level II Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**October 26 Microsoft Excel For Windows, Level II Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**October 26 Microsoft Excel I Class.** San Francisco. Media Alliance. Call: (415)771-7133.
**October 26 Netware 3.11 (CNA) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**October 26 System 7 Workshop.** San Francisco. Media Alliance. Call: (415)771-7133.
**October 26 Using Laptops For Productivity Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.
**October 27 Adobe Illustrator II Class.** San Francisco. Media Alliance. Call: (415)771-7133.
**October 27 Intermediate Lotus 1-2-3 For Windows 4.0 Class.** Oakland. California Computer Options. Call: (510)444-5700.
**October 27 Intermediate Word For Windows Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.
**October 27 Intro To Lotus 1-2-3 For Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.
**October 27 Netware 3.11 To 4.0 Update Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**October 27 "30 Years Of Software—Did We Learn Anything?" Seminar.** San Francisco. IEEE Computer Society. Call: (415)905-4400.
**October 27–28 Novell System Supervisor 3.11 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.
**October 27–28 Ventura Publishing Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.
**October 27–29 AutoCAD 3-D Intro Class.** San Francisco. SF State Extension. Call: (415)904-7710.
**October 28 Intermediate dBase IV Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.
**October 28 Intermediate Excel For Windows Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.
**October 28 Lotus For Windows Class.** Pleasant Hill. ACTech. Call: (510)685-6327.
**October 28 Netware 3.11 To 4.0 Update Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**October 28 Video Capture And Playback For Multimedia Applications Seminar.** San Mateo OCVS. Call: 1-800-404-OCVS.
**October 28–29 Local Area Networks: LANtastic To Novell Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.
**October 28–29 Understanding Local Area Networks Class.** San Francisco. Advanced Information Technologies. Call: 1-800-882-8684.
**October 29 FileMaker Pro For Windows, Level II Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**October 29 Macintosh Network Administration Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**October 29 Networks For Legal Professionals Seminar.** San Francisco. UltraVision. Call: (415)863-8407.
**October 29 Paradox For DOS, Level II Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**October 29 Towards The Intelligent Office Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.
**October 29 Using Laptops For Professionals Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.
**October 29 WordPerfect 5.2 For Windows, Level 3 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.
**October 30 CorelDRAW! 4.0 Hands-On Course.** Santa Clara. Goals of California. Call: (510)562-55113, ext. 6625
**October 30 WordPerfect Class.** Oakland. Action Computer Training Institute. Call: (510)562-5511.

### NOVEMBER

**November 1 Intro To Mac Networks Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 1 Intro To Microsoft Windows Class.** San Francisco. SF State Extension. Call: (415)904-7710.
**November 1 Intro To The Mac Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 1 QuarkXPress I Class.** San Francisco. Media Alliance. Call: (415)771-7133.
**November 2 Introduction To Lotus 1-2-3 Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.
**November 2 Mac Maintenance And Troubleshooting Class.** San Francisco. Media Alliance. Call: (415)771-7133.
**November 2 Microsoft Excel II Class.** San Francisco. Media Alliance. Call: (415)771-7133.
**November 2 Microsoft Word For Windows, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 2 Netware 3.11 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**November 3 Netware 3.11 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**November 3 Networking Technologies Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**November 3 PageMaker For Windows, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 4 Beginning FileMaker Pro Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 4 Beginning WordPerfect 6.0 Class.** Oakland. California Computer Options. Call: (510)444-5700.
**November 4 Build And Upgrade An IBM PC Clone Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.
**November 4 FileMaker Pro For Windows, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.
**November 4 Netware 3.11 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**November 4 Networking Technologies Class.** Oakland. MIS Services Corp. Call: (510)208-5700.
**November 5 Expert Systems And AI For Business Class.** San Francisco. Network Services Group. Call: 1-800-998-3540.
**November 5 Introduction To Paradox Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.
**November 5 Microsoft Access Class.** Pleasant Hill. ACTech. Call: (510)685-6327.
**November 5 NetWare System Administrator 3.11 Seminar.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.
**November 6 Intro To Virtual Reality Lecture.** San Francisco. SF State Extension. Call: (415)904-7700.
**November 6 Microsoft Word On PC/Mac Class.** San Jose. InfoMind. Call: (408)243-1121.
**November 6, 7 & 13 Intro To Photoshop Class.** San Francisco. SF State Extension. Call: (415)904-7700.
**November 6 & 13 Local Area Networks:**

*continued on page 264*

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- 486DX Intel Processor w/Socket (Upgradable to Pentium)
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- 4MB RAM
- Teac 5.25" & 3.5" Diskette Drives
- 250 MB IDE Hard Drive
- Local Bus 32-Bit IDE Interface
- Vesa Local Bus Spider Plus Video Card w/Hi Color & Windows Accel.
- 14" Non-Interlaced SVGA .28 Monitor
- Mini Tower Case w/230W P.S.
- 101-Key Keyboard
- Logitech 400 DPI Mouse

**$899**

## 486DLC-33 System

- 486DLC-33 Processor
- 4MB RAM
- Teac 5.25" & 3.5" Diskette Drives
- 125 MB IDE Hard Drive
- IDE Controller w/2S, 1G, 1P
- SVGA Card w/1MB
- 14" Color SVGA .28 DP Monitor
- Mini Tower Case w/230W P.S.
- 101-Key Keyboard
- MS Compatible 3 Bottoms Mouse

**$869**

## 386DX-40 System

- 386DX-40 AMD Processor
- OPTI Chipset MB w/8 Slots
- 4MB RAM
- Teac 5.25" & 3.5" Diskette Drives
- 125 MB IDE Hard Drive
- IDE Controller w/2S, 1G, 1P
- SVGA Card w/1MB
- 14" Color SVGA .28 DP Monitor
- Mini Tower Case w/230W P.S.
- 101-Key Keyboard
- MS Compatible 3 Bottoms Mouse

### MEMORY & CHIPS

| | |
|---|---|
| 1 MBx9 SIMM 60ns | |
| 1 MBx9 SIMM 70ns | |
| MBx9 SIMM 70ns | |
| 1 MBx36 SIMM 70ns | |
| 2 MBx36 SIMM 70ns | |
| 4 MBx36 SIMM 70ns | |
| Cyrix 387DX-40 | |
| Cyrix 387DX-33/25 | |
| Cyrix 387SX-25/20/16 | |
| Intel 80387DX-33/25 | |
| Intel 80387SX-25/16 | |

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### MOTHERBOARDS W/CPU

| | |
|---|---|
| 486DX-33/128K Intel VLB | $350 |
| 486DX-40/128K AMD VLB | $350 |
| 486DX2-50/128K Intel VLB | $380 |
| 486DX-50/128K Intel VLB | $500 |
| 486DX2-66/128K Intel VLB | $550 |
| 486DLC-33/128K | $154 |
| 386DX-40/128K | $124 |
| 386DX-33/128K | $115 |

### PRINTERS

| | |
|---|---|
| Canon B J-200 | $330 |
| HP DeskJet 500 | $305 |
| HP DeskJet 500C | $685 |
| HP Laser Jet 4 | $1330 |
| HP Laser Jet 4L | $685 |
| Panasonic 1123 | $168 |
| Panasonic 1124i | $238 |
| Panasonic 2123 | $218 |
| Panasonic 2180 | $156 |

### MONITORS

| | |
|---|---|
| ADI4G 15" .28dp 1280x1024 | $425 |
| Mag 15F 15" 1280x1024 | $454 |
| Mag 17F 17" .26dp/OEM | CALL |
| Nanao 340iw | $655 |
| Nanao F550iw | $1075 |
| Nanao T560i | $1640 |
| NEC 3FGx | $576 |
| NEC 3FGe | $576 |
| NEC 4FGe | $676 |
| NEC 5FG | $1358 |
| NEC 5FGe | $1070 |
| Sony CPD-1304 | $516 |
| Sony CPD-1604 | $895 |
| Sony CPD-1430 | $562 |
| Sony CPD-1730 | $966 |
| Viewsonics 2 | $235 |
| Viewsonic 4E | $265 |
| Viewsonic 6E | $290 |
| Viewsonic 7 | $860 |
| Viewsonic 15 | $465 |
| Viewsonic 17 | $1035 |
| Viewsonic 20 | $1640 |
| SVGA 14" .39dp | $198 |
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| Conner CP30204 212MB 12ms IDE | $198 |
| Conner CP30254 250MB 14ms IDE | $218 |
| Conner CP30544 540MB 12mn IDE | $569 |
| Maxtor 7213AT 213MB 15ms IDE | $205 |
| Maxtor 7245AT 245BM 15ms IDE | $228 |
| Maxtor 7345A 340MB 13ms IDE | $368 |
| Maxtor MXT540 535MB 8.5ms IDE | CALL |
| Quantum ELS127 16ms 127MB IDE | $162 |
| Quantum LPS240 240MB 15ms IDE | $230 |
| Quantum LPS525AT 525MB 12ms IDE | CALL |
| Western Digital WD2200 212MB 14ms IDE | $198 |
| Western Digital WD2250 250MB 14ms IDE | $212 |
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| Teac 1.2MB Floppy Drive | $49 |
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| Spider 24VLB Plus | $102 |
| Spider Black Widow | $195 |
| ATI Pro 1MB/2MB(ISA) | $244/$310 |
| ATI Pro 1MB/2MB(VLB) | $256/$335 |
| ATI Graphics Ultra Plus 1MB/2MB | $300/$380 |
| ATI Graphics Ultra w/1MB & Mouse | $184 |
| Cirrus Logic VLB w/1MB | $92 |
| Diamond Speedstar 24X w/Hi-Color & 1MB | $140 |
| Diamond Stealth 24VLB w/1MB | $159 |
| Diamond Stealth Pro VRAM w/2MB | $340 |
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| Trident 8900C/8900CL w/1MB | $58 |

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| Promise DC-99M IDE w/512K Cache | $110 |
| Promise DC-100 IDE Cache with I/O | $120 |
| Promise DC-4030 VLB IDE Cache w/4HD | $154 |
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| Calcom 14.4 Fax/Modem w/Bit Fax | $135 |
| Zoltrix 2400/9600 Internal Fax/Modem | $45 |
| Zoltrix 2400/9600 Int. Fax/Modem (Win) | $57 |
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| Zoltrix 14.4 Ext. Fax/Modem | $168 |
| US Robotics 14.4/14.4 Int. Fax/Modem | $173 |
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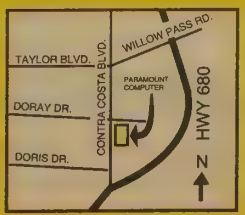

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**The Career Network.** 1-800-734-7274. 7:30pm–2:30pm. 1200/2400. Job hunting? Now your resume can reach over 200 major employers each month. Sysop: Steven McCormick. [Exp. #115.]

**Dating Tree BBS.** (408)946-1431; (415)494-7847; (510)790-4746. 16 lines, online chat, email, matchmaking. Call for more access numbers. [Exp. #116.]

**HoloNet Internet Access BBS.** (510)704-1058; call for other nationwide numbers. 8-N-1, 24 hrs., 1200/2400/9600/14,400. Internet: telnet, FTP, IRC, MUDs. 3500+ Usenet groups. Free demo. [Exp. #114.]

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**Mind Extension University BBS.** 1-800-688-6463. Distance education, discussions linking over 20 US universities, RIP Graphics, and more. Sysop: Jim Foss. [Exp. #115.]

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### 408

**A32 Macintosh Users Group BBS.** (408)378-8252. 24 hrs., 9600. Mac, FirstClass. [Exp. #116.]

**Autos Online.** (408)356-1306, 356-3866, 358-2010. 1200/2400. Shop Bay Area new car dealer inventories, private party for sale and wanted. Vehicle-related forums. No fee. [Exp. #115.]

**The Black Shadow.** (408)248-3823. 24 hrs., 1200. ChaosNet@4269, message bases, VirtualNet@1408021. Sysops: Lightning Seed, Ik, Firefoxx. [Exp. #116.]

**Burn This Flag.** (408)363-9766. 2400/9600. Esoteric text files and message system for closet Luddites. San Jose, 2 lines. NIRVANAnet. [Exp. #116.]

**Careers Online.** (408)248-0829. 1200/2400/9600/14,400. Hundreds of new job listings. Free to all. [Exp. #116.]

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**Eat My Shorts.** (408)737-1885. 14,400. FidoNet, KinkNet, files, games, adult, etc. Sysop: Brewmaster. [Exp. #115.]

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**The Glory Board BBS.** (408)247-8740. 300/1200/2400/9600/14,400. Game-oriented, files, and doors. Free. [Exp. #116.]

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**Laser Light BBS.** (408)496-0771. 8-N-1, 24 hrs., 1200/2400/9600/14,400. IBM, specializing in game-related files. Sight and sound demos. Sysop: Virtual Man. [Exp. #116.]

**Links BBS.** (408)294-6933. 8-N-1, 2400. Online help for families of special needs children. Info, support. Free. [Exp. #115.]

**Mail Stop BBS.** (408)257-1919. 8-N-1, 24 hrs., 300/1200/2400/4800/9600/19,200. Free, private email and SIG system. Internet/voice mailboxes avail. Sysop: Dcarter. [Exp. #114.]

**The Meating Place BBS.** (408)926-6174. 24 hrs., 14,400. Gay/Bi, six lines, email, chat, matchmaker, GIFs, and more. System password: Micro. Sysop: John C. Lambert. [Exp. #116.]

**Mongoose BBS.** (408)733-3034. 24 hrs., 14,400. SmartNet, adult files, latest sharewares on CD-ROM. Free. Sysop: Robert Yagmourian. [Exp. #115.]

**Monterey Gaming Systems.** (408)655-5555. 300/1200/2400/9600/14,400. 24 lines, conferences, email, messages, custom games. Free. [Exp. #115.]

**The Mud Hole BBS.** (408)865-1647. 2400/9600/14,400. Two lines, many door games, files, GIFs, and FidoNet. [Exp. #116.]

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**Rising Storm BBS.** (408)379-4329. 8-N-1, 14,400. Emergency prep., firearms, politics, and more. Survival echoes and files. Sysop: Kirk DeHaan. [Exp. #116.]

**SAIN BBS—St. Andrew Info Net.** (408)257-1846. 8-N-1, 24 hrs., 300/1200/2400. Anything and everything Armenian including daily news from and about Armenia. Free. [Exp. #116.]

**The Shrine BBS.** (408)747-0778. Magick, religions, and sex. Adult and women only areas by request. NIRVANAnet. Sysop: Junell Zzz and Tom Zoch. [Exp. #116.]

**The Silicon Valley Christian Connection.** (408)246-7002. 300/1200/2400/9600/14,400. NewLife Net, Christ Net, 1GB of files and custom GIFs. All are welcome. Free access. [Exp. #115.]

**Smorgasbord BBS.** (408)722-9101. Aptos, Watsonville, Gilroy. 35,000 IBM/Mac/Amiga files, matchmaking, WNET. [Exp. #116.]

**The Support Network BBS.** (408)259-0297. 8-N-1, 2–8 pm. 1200/2400/9600. Community computing for Santa Clara County. Now with RIP graphics. Sysop: Frank Arnold. [Exp. #116.]

**Third Dimension BBS Of Pioneer HS.** (408)267-9621. 300/1200/2400/9600/14,400. Everyone welcome. Atari, IBM, and Mac file/message bases, 130 megs, GIFs/MODs. Free. Sysop: Jake Jones. [Exp. #115.]

**Under The Gypsy Moon BBS.** (408)944-9131. 24 hrs., 300/1200/2400/9600/14,400. Wildcat, USANet, general audience, one line. Specialty is ham radio files. Sysops: David and Marilyn Morales. [Exp. #116.]

**The Virtual Reality BBS.** (408)246-5434. 8-N-1, 1200/2400. Games, files, and Net mail coming soon. Free. Sysop: Jim Busby. [Exp. #116.]

**The Warrior Realm BBS.** (408)287-3945. 8-N-1, 24

*Continued*

## BAY AREA BBSes

*By Kathleen Creighton*

### New Cars Online

When I was a kid growing up in the Detroit area, fall meant not only the beginning of a new school year, and autumn colors—it also meant the American automotive industry's new car year. As I spotted the new cars—the Fords, Chevys, Buicks, Pontiacs, Plymouths, Dodges, and more (are you old enough to remember the Nash Rambler?)—on the street, I'd note them on my mental check list. I wanted to make sure I'd seen all of the makes and models, and all of the new fashion colors. If one of the men in the neighborhood actually parked one of those new cars in the driveway, it was the center of neighborly conversation for days. (This was back in the days when only men bought cars.) And if we were really lucky, we'd get a ride in Detroit's newest Big Iron, surrounded by new car smell.

I wouldn't embarrass myself with such public reminiscence if I couldn't make a redeeming leap (or drive, if you will) into the role of online life in that glorious autumn ritual of buying a new car. There are many classified ad forums online where used cars can be listed for sale, but a San Jose company, Resource, has developed a way for San Jose area car shoppers to tap into new and used car shopping, at no charge, from the comfort of the shopper's personal computer—a unique BBS called Autos On-Line (408/356-2010, 2400 baud, 8-N-1).

Unlike "in-your-face" online advertising, a la Prodigy, Resource is bringing new and used car dealers and private parties together on an easy-to-use BBS where cars can be selected by make, by price range, and by type (new or used). In addition, private parties with used cars to sell can list them in the appropriate message areas. There is no pressure on the user to do anything more than browse the board. If the user is interested in a new car listed online, s/he can print out the information (or write it down if no printer is available) and present it to the top management of the sponsoring dealer.

That's all there is to it. There are no gimmicks, no hidden costs, and no salesman will call. Mark Wagner, Resource's owner, explained that the idea for the service came about after a relative told of traipsing from car lot to car lot in search of a new car. Wagner is an electronics professional who wondered if a solution couldn't be found by uniting existing online technology and its users with new car dealers.

The simple database capability of BBS software makes it perfect for searching for new or used cars by make and model or by price. All of the dealership cars are referenced by an Autos On-Line dealer number and stock reference number. The screen describing the contact person for the dealership and phone numbers also has an ASCII map of the dealership location. A few of the dealers are available via email.

Private parties can list used cars for sale or wanted in the message area for the appropriate make at no charge. A simple search routine allows the user to browse the complete list at once. There are also message areas for boats, RVs, motorcycles, and discussion regarding insurance.

Autos On-Line is an evolving project, and Wagner welcomes feedback and suggestions from users. Right now it covers selected car dealerships in the San Jose area only, although Resource has had requests to expand into other Bay Area markets. And the board has been adding dealerships on the basis of

*Continued*

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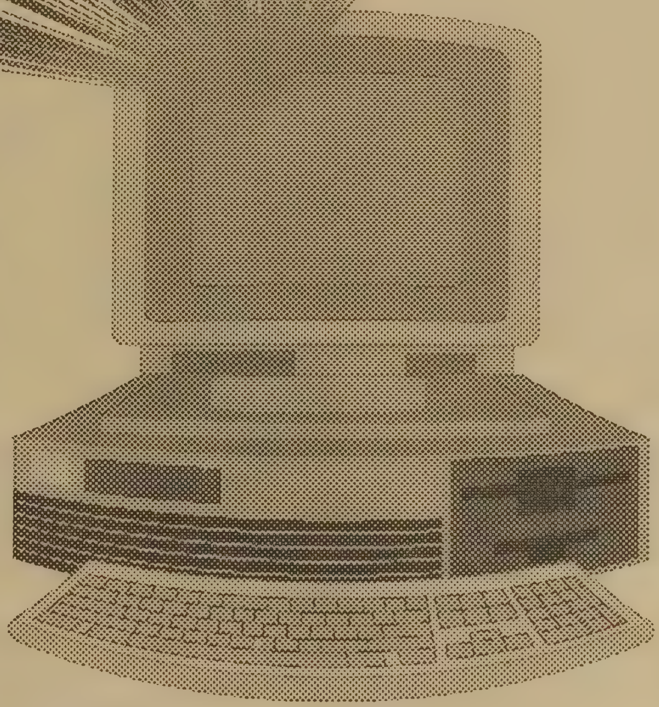

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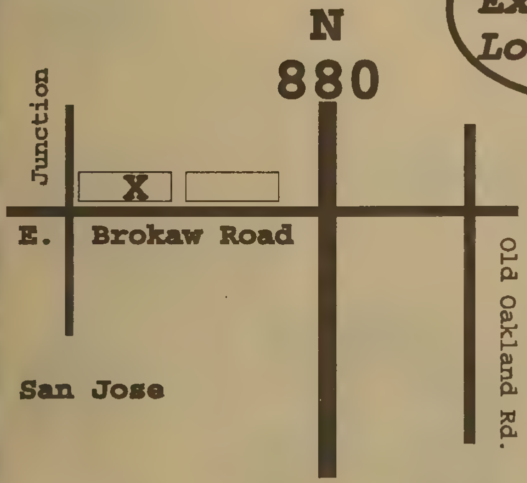

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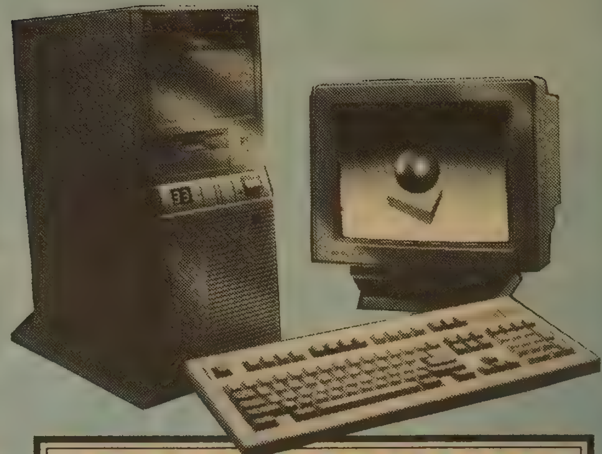

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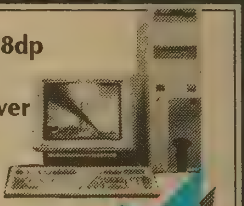

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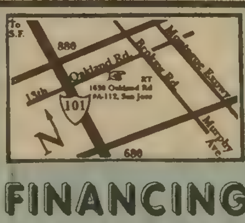

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**Bay Area Bird Registry.** (415)771-1788. Lost and found birds. UserName=BIRD, Pwd=LOVER. Sysop: Walt Perko. [Exp. #114.]

**Bay Window BBS.** (415)755-2939. 9 am–11 pm, DOS, demal, windows, games, utilities files, no GIFs or handles allowed. Sysop: Judy. [Exp. #116.]

**The Board With No Name North.** (415)826-9626. 8-N-1, 24 hrs., 300/1200/2400/9600/14,400. Gay male BBS, chat, OMNIChat, email, library, GIFs, and fantasy text. [Exp. #115.]

**Career Connections.** (415)917-2129, 917-2125. 8-N-1, 24 hrs. View and respond online to career opportunities. Free. Sysop: S. Dave. [Exp. #114.]

**Clipboard.** (415)239-0454. 12pm–12am. 14,400. Clipper files, FidoNet, Internet, Intelec newsgroups and conferences (job listings, for sale), and doors. Sysop: George Jereza. [Exp. #114.]

**Corner UNIX.** (415)564-8750, 564-4345. 8-N-1, 1200/2400/9600/14,400. San Francisco Public Access UNIX. Full USENET, Internet email, multiline. Sysop: Furryeel. [Exp. #116.]

**Creekside BBS.** (415)343-5692. 1200/2400/9600/14,400. Genealogy- and history-based files and messaging. Intelec, Seeknet, Science Factor Net, GTpowerNet. [Exp. #115.]

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**CyberNET.** (415)512-9423. 24 hrs., 2400–38,400. All Macintosh Telefinder GUI interface, FidoNet, hi-tech and beyond. Free. [Exp. #114.]

**DPNet BBS.** (415)788-8663. 8-N-1, 300/1200/2400/9600. Free consultant job listings, FidoNet conferences, Professional Computing organizations, and technical SIGs. [Exp. #114.]

**The Energy Board.** (415)861-2510. 8-N-1, 12 pm–12 am. FidoNet/USENET environment and energy issues. Sysop: Roger Harried. [Exp. #114.]

**Eye Contact BBS.** (415)703-8200. 300/1200/2400/9600. Gay men's issues, 70 lines, chat, matchmaker, over 20,000 files. 18 and over. Local access numbers nationwide. Sysop: Bill Montgomery. [Exp. #114.]

**Fog City.** (415)863-9697. 8-N-1. Gay & Lesbian community/chat, matchmaking, CD-ROMs, games. Internet email. [Exp. #114.]

**Fun University Network.** (415)327-4591. 8 lines. Free graphical interface, hosted multi-player simulation games, current events focus. Sysops: Wendie, Mike, Lisa, and Scott. [Exp. #114.]

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# BBS Column continued...

the relative popularity of the make of car. For example, a Honda dealer participates, but there is not yet an Isuzu representative. Folks in the San Jose area with cars on their minds should definitely give this board a look.

## A WORD OF ADVICE

Prodigy was recently skewered on the Prodigy Exchange BBS for charging users' credit cards three weeks or more in advance of users' annual memberships expiring. At this writing, Prodigy has agreed to change this new advance-charge policy and to provide notice to users 45 days in advance of the membership running out.

Prodigy is claiming it takes a complete billing cycle to issue a credit to those users who are not renewing, rather than when the user cancels the "new" annual membership. It's not all that unusual for companies to claim a "processing time" for refunds when everyone knows it isn't necessary.

But one of the public postings was from someone who had paid for an annual membership last year using a *debit* card. This year, with no notice, Prodigy simply removed $115 from his checking account. The user had just moved and was suffering from severe cash crunch when he found he had no funds at all in his checking account. After much discussion with Prodigy Member Services, Prodigy "agreed" to turn the money back to him in five to seven working days—not helpful when one can't buy groceries.

Not many of us are using debit cards yet. This user's experience is instructive. There's recourse for unwanted charges on our credit cards, but recourse or not, when the *cash* is gone, it's gone. Debit cards might be okay for spot purchases, but for renewable memberships and subscriptions, it might be a better idea to use something else.

## EMAIL, I GET EMAIL . . .

Next time I'm feeling that no one reads my column, I'll write another one about gun BBSes. If the volume of my email about that column is any indication, now I know for sure that people read it.

Most of it was from readers appreciative of the unbiased presentation, but that springs from the way I look at bringing useful information to BBS and online service users. Usually, if I don't have anything good to say about (in this case) a BBS, I don't say anything at all. I figure everyone knows where their local download, chat, and adult boards are; I look specifically for boards which have an identifiable point of view and enough material online supporting that viewpoint to be interesting.

One email writer did point out to me, however, that I referred to the gun BBSes as being "advocates" of gun ownership, when in fact gun ownership is a "choice," a point well taken.

Thank you all very much for your feedback. Email sent to me at *casey@well.sf.ca.us* will reach me much faster than USPO mail sent to me in care of *MicroTimes*.

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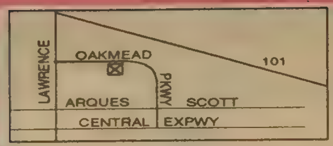

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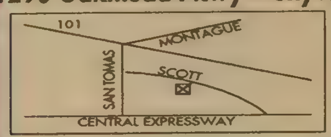

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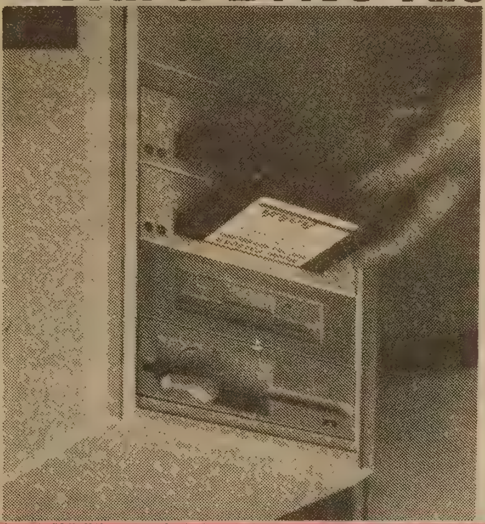

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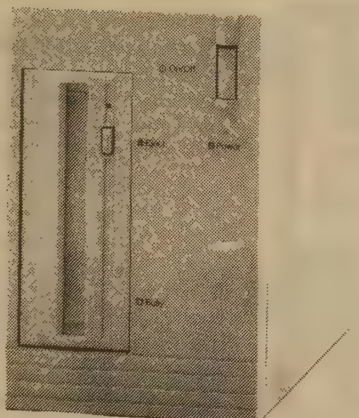

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**Window World BBS.** (415)931-0649. 24 hrs. For people who use Windows-type software; info, shareware, chat. Sysop: Bob Cram. [Exp. #115.]

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**BayB—The Bay Area Baby Board.** (510)528-8164. 8-N-1, 14,400. Parents' support network: games, education, health, reviews. Free. Sysops: Lori and Derek. [Exp. #115.]

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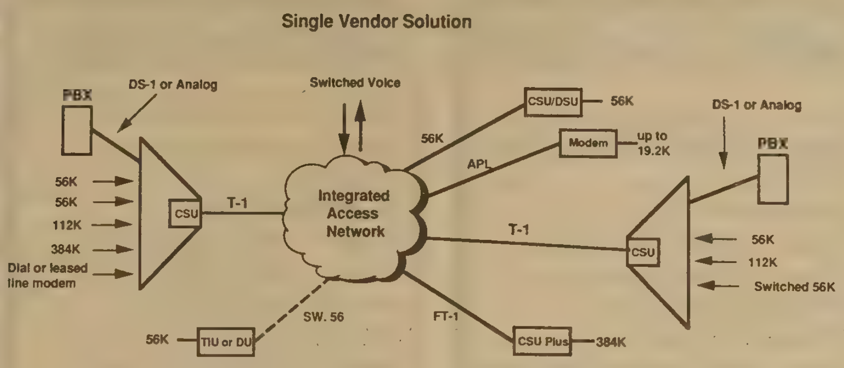
## Network Adapters

| | |
|---|---|
| **Addtron Ethernet Combo...** | **$85** |
| •BNC, 10 Base T<br>•Five-year Warranty | |
| **Addtron Ethernet Xcvr.......** | **$49** |
| •Thick to Thin or 10Base T | |
| Addtron POCKET size Ethernet..... | $185 |
| Xircom POCKET E-net Combo...... | $330 |
| Xircom PCMCIA Ethernet............. | $290 |
| Xircom PCMCIA E-net Combo....... | $315 |
| **T.C. Token Ring Combo......** | **$369** |
| •16/4 mps, DB9 and Twisted Pair<br>•Three-year Warranty | |
| Accton POCKET Token Ring 16/4.. | $440 |
| T.C. PCMCIA Token Ring 16/4....... | $615 |



## $$We Save You Money$$

Novell Authorized Service Center

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| | |
|---|---|
| NetWare 4.0, 25 User ............ | $3,275 |
| NetWare 3.11, 20 User ........... | $1,765 |

### UNIX for PCs

| | |
|---|---|
| FTP (B) ................................................ | $427 |
| SUN-PC/NFS (B)................................ | $447 |
| TCP Kernel............................................ | $90 |
| Hummingbird eXceed/W.................... | $411 |
| XVision.................................................. | $364 |

### UNIX for MACs

| | |
|---|---|
| TCP/IP (B) ........................................... | $395 |
| NFS (B)................................................... | $395 |
| TCP/IP + NFS (B)................................ | $615 |
| Apple MacX........................................... | $280 |

(B) Price includes Ethernet Card & SW

### NW Cards & Equipment

| | |
|---|---|
| 3COM Etherlink III Coax.................. | $145 |
| 3COM Etherlink III TP.................... | $145 |
| SMC Ethercard Ultra 16 Coax.......... | $119 |
| SMC Ethercard Ultra 16 TP.............. | $119 |
| Asante Ethernet Card........................ | $154 |
| Dayna Etherprint................................ | $380 |
| Intel NetPort II.................................... | $449 |
| Arcnet Kit w/AI or NW Lite............. | $262 |
| Ether Kit w/AI or NW Lite............... | $295 |
| 1000' Cable.......................................... | $200 |
| AMP BNC Male Conn (10-P).............. | $30 |
| 15' or 25' assembled cable.................... | $20 |
| IBM T.R. Patch Cable 8'....................... | $18 |
| Transceiver Cable 3'.............................. | $25 |
| 10Base T 9-Port Hub............................ | $285 |
| 10Base T 18-Port Hub.......................... | $565 |
| 2-Port Ethernet Repeater.................... | $399 |
| 4-Port Ethernet Repeater ................... | $599 |
| 8mm Tape Drive................................... | $1669 |
| 4mm DAT 2G Tape Drive.................. | $1189 |

## COMPAQ File Server

### You need a real file server!

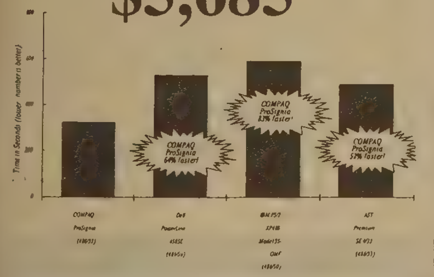
A personal computer steroided with a large chassis, big drives, rich memory, and multiple cards is still a "personal" computer. To be used as a network file server, it can function but hardly produce. Architectures are different. Compaq has the real server, so you know, but you also doubt if it's for you...

### Think you can't afford a Compaq server?

### Think again.

- 486/33 EISA, 24M
- Compaq Fast SCSI-2 host adapter
- Compaq Netflex 32-bit EISA NIC
- 3-year on-site service for the above items
- 1G SCSI-2 hard disk (12ms)
- VGA monochrome monitor
- Fully installed with NetWare and tested

## $5,685



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| DEC VAX | X-WINDOW | FRAME RELAY |
| DEC RISC | DEC PATHWORKS | ISDN |
| SPARC SUN-OS | APPLETALK | DIAL-UP |

NAC is authorized by the following system vendors:
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- Enterprise Network Design
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- System Administration
- System Management
- Equipment Installation
- Application Installation
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- System Administration Training
- Application Software Training
- Network System Trouble-Shooting
- On-Site Hardware Trouble-Shooting
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- Maintenance Contract
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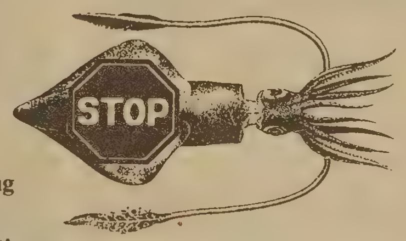

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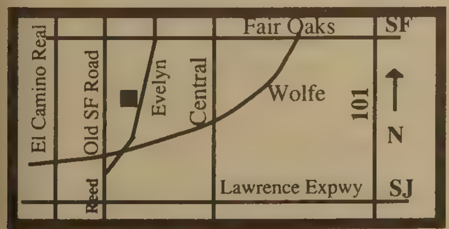

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# *LAITRON COMPUTER WEEKLY SPECIALS*

## 486DX2-66/256

- NICE 2 VLB OR AIR 3 VLB
- Intel 80486DX2-66 CPU w/fan
- AMI BIOS
- 8MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- PROMISE IDE/IO VLB
- 340MB IDE HD
- Focus 9000 128-key Keyboard
- Diamond Stealth VLB w/1MB
- Viewsonic 15 Monitor
- Medium Tower Case
- 250-Watt Power Supply

**$2095**

## 486DX2-66/256

- Orchid 2 VESA Local Bus
- Intel 80486DX2-66 CPU w/fan
- AMI BIOS
- 8 MB RAM 70ns
- Teac 1.2 MB Floppy Drive
- Teac 1.44 MB Floppy Drive
- PROMISE IDE/IO VLB
- 340MB IDE HD
- Focus 9000 128-key Keyboard
- Orchid VA805 VLB w/1MB
- ADI 4G 15" 1280X1024 Monitor
- Medium Tower
- 250-Watt Power Supply

**$1995**

## 486DX-33/128K

- 2 VESA Local Bus Board
- Intel 80486DX-33 CPU
- AMI BIOS
- 4MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44MB Floppy Drive
- PROMISE IDE/IO VLB
- 250MB IDE HD
- Mitsumi 101-key Keyboard
- VLB VIDEO with 1MB
- 1024x768 .28dp SVGA Monitor
- Mini Tower Case
- 230-Watt Power Supply

**$1265**

## 486DX-40/128K

- 2 VESA Local Bus Board
- AMD 80486DX-40 CPU
- AMI BIOS
- 4MB RAM 70ns
- Teac 1.2MB Floppy Drive
- Teac 1.44MB Floppy Drive
- PROMISE IDE/IO VLB
- 250MB IDE HD
- Mitsumi 101-key Keyboard
- VLB VIDEO with 1MB
- 1024x768 .28dp SVGA Monitor
- Mini Tower Case
- 230-Watt Power Supply

**$1245**

## CD-ROM SOFTWARE

| | |
|---|---|
| American Business Phone Book '92 | $23 |
| Animals v.1.0 (DOS) | $18 |
| Arthur's Teacher Trouble (MPC) | $23 |
| Barney Goes To Space | $25 |
| Battle Chess (DOS) | $18 |
| Bus & Econ Atlas (DOS) | $22 |
| Carmen San Diego (DOS) | $21 |
| CD Game Pack II (DOS) | $23 |
| CD Storytime (DOS) | $17 |
| ChessMaster 3000 (MPC) | $18 |
| Compton's Encyclopedia (MPC) | $60 |
| Compton's Family Encyclopedia | $50 |
| Desert Storm (MPC/Mac) | $19 |
| Dictionary of the Living World | $29 |
| Dinosaur Adventure | $23 |
| Dr. Window Shareware | $19 |
| Dr. Game Shareware | $19 |
| Dr. Music Shareware | $19 |
| Dr. Shareware | $19 |
| Electronic Home Library | $18 |
| Family Choice/Britannica | $25 |
| Family Doctor (DOS/Mac) | $22 |
| Family Education Collections (DOS) | $19 |
| FontMaster I or FontMaster II | $25 |
| Futura Games | $21 |
| Great Cities of the World vol. 1/2 (DOS) | $19 |
| Guiness Disk of Records (MPC) '93 | $22 |
| Illustrated Works of Shakespeare | $27 |
| Jones in the Fast Lane (MPC) | $16 |
| King's Quest V (DOS) | $16 |
| Kodak Photo CD | $16 |
| Library of the Future 1st ed. (DOS) | $45 |
| Loom from Lucas Film (DOS) | $16 |
| Macmillan Dictionary for Children (MPC) | $29 |
| Magazine Rack | $35 |
| Manhole | $40 |
| Mario's Missing/World Atlas | $17 |
| Mavis Teaches Typing (MPC) | $19 |
| Mayo Clinic (MPC) | $22 |
| Media Clips 1 Pak (MPC/Mac) | $38 |
| Microsoft Bookshelf '93 (MPC) | $50 |
| Microsoft Works (MPC) | $50 |
| MIDI Music Shop | $18 |
| Mirror Mirror | $22 |
| Mixed-Up Mother Goose (MPC) | $19 |
| Monkey Island (DOS) | $22 |
| Musical Instruments | $69 |
| National Geographics Mammals (DOS) | $22 |
| National Parks | $25 |
| Ocean Digital Imagery v. 1 (DOS) | $33 |
| Oldies But Goodies | $22 |
| PC-SIG 12th ed. (DOS) | $28 |
| Peter and the Wolf (MPC) | $15 |
| Playing with Language - (E/F/G/J/S) | $23 |
| Publish It! v. 2.0 (DOS) | $22 |
| Roger Ebert's Movie Companion | $40 |
| Secret Weapons of Luftwaffe (DOS) | $19 |
| Seventh Guest-Virgin Games | $55 |
| Sherlock Holmes (DOS) | $16 |
| Sleeping Beauty | $24 |
| So Much Shareware! II (DOS) | $15 |
| So Much Shareware! III (DOS) | $22 |
| Sound Library (MPC) | $20 |
| Space Series Apollo | $40 |

## CD-ROM SOFTWARE

| | |
|---|---|
| Stellar 7 (DOS) | $16 |
| Swim Wear 1993 | $26 |
| The Beauty & The Beast (MPC) | $15 |
| The Best of Micro Prose | $29 |
| TIME Almanac 1991 (DOS) | $22 |
| TIME Table of History (DOS) | $16 |
| Toolworks Encyclopedia (MPC) | $48 |
| Total Baseball (DOS/Mac) | $18 |
| True Type Explosion Fonts | $27 |
| U.S. Atlas & Automap (DOS) | $24 |
| U.S. History (DOS/Mac) | $22 |
| USA Wars: Korea | $28 |
| USA World Atlas Pack | $29 |
| USA Wars: Vietnam (DOS/Mac) | $28 |
| USA Wars: World War II (DOS/Mac) | $28 |
| Variety Store | $21 |
| VGA Spectrum Sound Library | $18 |
| Vital Signs (MPC/Mac) | $93 |
| Who Killed Sam Rupert | $25 |
| Wing Commander/Ultima VI (DOS) | $21 |
| Winware! vol. 3 | $18 |
| Wiz-Pak Shareware | $18 |
| Woman of Venus | $28 |
| World of Flight | $30 |
| World Atlas v. 3.2 (MPC) | $15 |
| World of Trains | $30 |
| World View (DOS) | $13 |
| World Vista | $35 |

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## CD-ROM

| | |
|---|---|
| NEC CD-ROM 84/74 (280ms) | $370/$480 |
| MITSUMI CD-ROM (350ms) w/Card | $158 |
| PANASONIC CR-562 (300kb/s) | $230 |
| PANASONIC CR-522 | $170 |
| TEXEL INT | $335 |
| TEXEL EXT | $430 |
| TOSHIBA 3401 INT | $355 |
| TOSHIBA 3401 EXT | $455 |
| SONY CD 31A W CONTROLLER INT | $155 |

## PRINTERS

| | |
|---|---|
| Brother HJ400 ink jet (Mac & PC) | $290 |
| Canon BJ-200 | $290 |
| Citizen GX130 Color 24 Pin | $195 |
| Citizen GX200 | $135 |
| HP DeskJet 500 | $300 |
| HP DeskJet 500C | $395 |
| HP DeskJet 550C | $580 |
| HP LaserJet 4 | $1320 |
| HP LaserJet 4L | $675 |
| HP LaserJet 4M | $1840 |
| HP LaserJet 4MI | $1025 |
| HP PaintJet | $699 |
| Oki Data OL400 | $495 |
| Panasonic 1123 | $168 |
| Panasonic 1124i | $238 |
| Panasonic 2123 | $218 |
| Panasonic 2150 | $140 |
| Panasonic 4410 | $545 |
| Color Kit | $45 |

## MONITORS

| | |
|---|---|
| ADI 4G 15" .28dp 1280x1024 | $400 |
| CTX 14" SVGA 1024x768 .28 Interlaced | $240 |
| CTX 14" SVGA 1024x768 .28 Non-Interlaced | $258 |
| CTX CMS 1561 15" 1024*768 .28 NI | $375 |
| Hitachi CM-2095 | $1275 |
| Hitachi CM-2187 .28/.31 dp | $2050/$1860 |
| Mag 17F 17" .26dp/OEM | $895/$845 |
| Mag 15F/Mag 15F LR | $455/$550 |
| Mitsubishi HL6955SETK 20" .31dp | $1720 |
| Mitsubishi Diamond Pro 17" .26dp | $1065 |
| Nanao 340iw | $650 |
| Nanao F550i/F550iw | $990$1055 |
| Nanao T560i/F560iw | $1630/$1370 |
| Nanao T660i | $2380 |
| Nanao F750i/F760iw | $2020/$2070 |
| NEC 3FGe | $572 |
| NEC 4FGe | $672 |
| NEC 5FGe/5FGe with Len | $1055/$1100 |
| NEC 6FG | $2295 |
| Sony CPD-1304 | $465 |
| Sony CPD-1430 | $556 |
| Sony CPD-1730 | $954 |
| Viewsonic 4E | $260 |
| Viewsonic 5+ | $430 |
| Viewsonic 5E | $352 |
| Viewsonic 6E | $280 |
| Viewsonic 7 | $820 |
| Viewsonic 15 | $460 |
| Viewsonic 17 | $1010 |
| Viewsonic 20 | $1640 |
| Viewsonic 21 | $1890 |
| Monochrome 14" | $92 |
| Monochrome VGA 14" | $108 |
| VGA 14" .51dp | $172 |
| SVGA 14" 39dp | $192 |
| SVGA 14" 28dp | $230 |
| SVGA 14" .28dp Non-Interlaced | $255 |

## VIDEO CARDS

| | |
|---|---|
| ATI Graphics Ultra Pro 1MB/2MB (ISA) | $244/$310 |
| ATI Graphics Ultra Pro 1MB/2MB (VLB) | $256/$335 |
| ATI Graphics Ultra Pro 1MB/2MB (EISA) | $290$355 |
| ATI Graphics Ultra Plus 1MB/2MB | $200/$233 |
| ATI Graphics Ultra w/1MB & Mouse | $162 |
| Cirrus Logic CL-GD5420 w/1MB | $58 |
| Cirrus Logic CL-GD5426/5428 VLB w/1MB | $87/$98 |
| Diamond Stealth 24 VLB w/1MB | $150 |
| Diamond Stealth Pro VRAM 1MB/2MB | $255/$330 |
| Diamond Viper VLB w/2MB | $360 |
| Genoa 8500VLB w/1MB | $97 |
| Number Nine level 10 (ISA) | $295 |
| Numer Nine lever 11 (ISA/VLB) | $361 |
| Nuber Nine lever 12 (ISA/VLB) | $431 |
| Orchid Fahrenheit VA801 w/Sound | $138 |
| Orchid Fahrenheit VLB w/1MB | $140 |
| Orchid ProDesigner IIS w/1MB | $135 |
| Orchid Celsius VLB 1MB/2MB | $224/$304 |
| Trident 9000A w/256K | $31 |
| Trident 9000A w/512K | $38 |
| Trident 8900CL w/1MB | $58 |
| Trident VLB 1MB | $75 |
| ET4000 Tseng lab ISA | $86 |
| ET400 Tseng lab VLB | $115 |

## HARD & FLOPPY DRIVES

| | |
|---|---|
| Conner CP30104 120MB 16ms IDE | $150 |
| Conner CP30174 170MB 16ms IDE | $164 |
| Conner CP30204 212MB 12ms IDE | $190 |
| Conner CP30254 250MB 14ms IDE | $198 |
| Conner CP30344 340MB 13ms | $265 |
| Conner CP30544 540MB <12ms IDE | $480 |
| Fujitsu M2622T 330MB 12ms IDE | $310 |
| Fujitsu M2623T 425MB 12ms IDE | $480 |
| Fujitsu M2624T 520MB 12ms IDE | $565 |
| Maxtor 7213AT 213MB 15ms IDE | $205 |
| Maxtor 7245AT 245MB 15ms IDE | $199 |
| Maxtor 7345A 340MB 13ms IDE | $275 |
| Maxtor MXT540 535MB 8.5ms IDE | $695 |
| Quantum LPS240 240MB 15ms IDE | $215 |
| Quantum LPS525AT 525MB 12ms IDE | $535 |
| Western Digital WD2200 212MB 14ms IDE | $188 |
| Western Digital WD2250 250MB 14ms IDE | $205 |
| Western Digital WD2340 340MB 13ms IDE | $268 |
| Western Digital WD2420 420MB 12ms IDE | $370 |
| Conner CP30350 340MB 12ms SCSI | $310 |
| Conner CP30540 540MB 12ms SCSI | $540 |
| Conner 1.37 GB SCSI 256K | $895 |
| Fujitsu M2623SA 425MB 11ms SCSI | $520 |
| Fujitsu M2624F 520MB 11ms SCSI | $550 |
| Fujitsu M2694SA 1.2GB 10ms SCSI | $900 |
| Fujitsu M2652SA 2.0GB 11ms SCSI | $1650 |
| Fujitsu M2654SA 2.4GB 12ms SCSI | $2100 |
| Maxtor MXT-540S 540 MB | $670 |
| Maxtor MXT1240S 1.2GB 8.5ms SCSI | $1089 |
| Quantum LPS525S 525MB 13ms SCSI | $495 |
| Quantum 1.2 GB PD1225S 10ms 512K SCSI | $898 |
| Toshiba 1.2GB MK538 12ms 512K Cache SCSI-2 | $880 |
| Teac 1.2MB Floppy Drive | $46 |
| Teac 1.44 Floppy Drive | $40 |

## NETWORK

| | |
|---|---|
| 3COM Etherlink II 16 bit coax/TP | $149/$159 |
| 3COM Etherlink III coax/TP | $130 |
| INTEL EtherExpress 16 coax/TP | $110 |
| INTEL EtherExpress 32 EISA | $425 |
| SMC plus Elite 16 coax/TP | $115 |
| SMC Elite 16 combo | $125 |
| SMC Elite 32 bit coax/TP | $570 |
| 8 Bit ethernet cards (NE1000 Compatible) | $42 |
| 16 Bit ethernet cards coax/TP | $47 |
| 16 Bit ethernet cards (3-in 1 combo) | $52 |
| 16 Bit ethernetcards (pocketfornoteBbook) | $148 |
| 16 Bit busmaster (NE2100 Compatible) | $88 |
| Ansel P-NS2000-BA 10 BASE -2 & AUI | $98 |
| Ansel P-NS2000--TA 10 BASE-T&AUI | $88 |
| Ansel P-NS2000-3 10 BASE-T &2&AUI | $118 |
| Arcnet 8-port Active Hub | $118 |
| Arcnet Bus Topology 8 Bit ISA Card | $48 |
| Arcnet Bus Topology 16 Bit ISA Card | $58 |
| Arcnet Star Topology 8 Bit ISA Card | $48 |
| Arcnet Star Topology 16 Bit ISA card | $58 |
| Hub and Repeasters 4 port 10 base THub | $148 |
| hub and Repeaters 6 port 10 base T Hub | $208 |
| Hub and Repeaters 12-port 10 base THub | $438 |
| Daughter Card 4 Additional RJ 45 port | $68 |
| Daughter Card BNC+AUI PORTS | $58 |
| 2 BNC Ethernet Repeater | $198 |

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# *LAITRON COMPUTER WEEKLY SPECIALS*

## Multimedia 486SX-25/128K

- 2 VESA Local Bus Board
- Intel 80486SX-25CPU
- Toshiba XM-3401 CD-ROM
- Pro Audio Spectrum 16
- 4MB RAM 70ns
- Teac 1.2 &1.44 Floppy Drive
- IDE/IO 2FD/2HD/2S/1P/1G
- Western Digital 250MB IDE HD
- Mitsumi 101-key Keyboard
- Cirrus Logic VLB SVGA w/1MB
- 1024x768 .28dp SVGA Monitor
- Medium Tower Case
- 250-Watt Power Supply

**$1595**

## Multimedia 386DX-40/128K

- AMD 386DX-40 CPU
- Sound Blaster Pro Sound Card
- PHILLIPS CD ROM
- Deluxe Speaker
- 4MB RAM 70ns
- 1.2 &1.44 Floppy Drive
- IDE/IO 2FD/2HD/2S/1P/1G
- Conner 170MB Hard Drive
- Mitsumi 101-key Keyboard
- Cirrus Logic SVGA w/1MB
- 1024x768 .28dp SVGA Monitor
- Mini Tower Case
- 230-Watt Power Supply

**$1160**

## 386DX-40/128K

- AMD 80386DX-40 CPU
- AMI BIOS & MATH-Co Socket
- Internal Clock Battery
- 4 MB RAM 70ns
- 1.2 MB Floppy Drive
- 1.44 MB Floppy Drive
- IDE 2FD/2HD Controller
- AT I/O 2S/1P/1G
- Conner 170MB 16ms IDE HD
- Mitsumi 101-key Keyboard
- Trident SVGA with 512K
- SVGA .28dp VGA Monitor
- Mini Tower Case
- 230-Watt Power Supply

**$859**

## Notebook Twinhead 486DX-33T

- 4MB RAM, Exp. To 20MB
- 130MB HD (200 MB Available)
- 1.44MB Floppy Drive
- 256-color Active Color Matrix
- 2S/1P/1G
- One External SVGA Port
- One External FD Port
- One 100-Pin Expansion Port
- One External Keyboard Port
- 120/240V AC/DC Adapter
- Internal Trackball

**$3695**

## KEYBOARDS

| | |
|---|---|
| Enhanced Keyboard | $17 |
| Focus 2001 | $36 |
| Foucs 9001 | $58 |
| Keytronic101-Key | $30 |
| Maxiswitch 101-Key | $28 |
| Maxiswitch 124 | $65 |
| Metek K208 101-Key | $22 |
| MetekK104101-Key Click | $42 |
| Mitsumi 101-Key | $26 |
| Northgate OmniKey 101 | $68 |
| Northgate OmniKey 102 | $68 |
| Northgate OmniKey Ultra | $92 |

## CONTROLLER CARDS

| | |
|---|---|
| IDE4FD/HD | $34 |
| IDE2FD/2HD/2S/1P/1G | $14 |
| DTC2290 EISA IDE | $135 |
| Promise DC-99MIDEw/512K Cache | $115 |
| Promise DC-200 IDE Cache w/4HD/2FD | $125 |
| Promise DC-4030 VLB IDE Cachew/4HD | $135 |
| Promise IDE/IO VLB | $45 |
| TecoCache VLB IDEw/4HD/2FD | $175 |
| Adaptec 1522/1522K SCSI | $98/$138 |
| Adaptec 1542C/1542CK SCSI | $186/$233 |
| Adaptec 2742 EISA SCSI | $360 |
| Adaptec 2842 VESA SCSI Controller | $295 |
| BusLogic BT445S VLB SCSI-II | $260 |
| BusLogicBT545KTBusMaster SCSI | $235 |
| BusLogicBTB742KTEISA SCSI-II Kit | $260 |
| BusLogicBTB747AK EISA SCSI | $380 |
| DTC3290ASEISA SCSI | $430 |
| DTC 2290 EISA IDE | $122 |
| DTC 2280 ISA IDE | $17 |
| DTC 2270 VLB IDE | $92 |
| Future Domain TMC950 SCSI w/IDE | $55 |
| Ultrastor24F EISA SCSI | $365 |
| Ultrastor 34F VLB SCSI | $265 |

## MOTHERBOARDS W/CPU

| | |
|---|---|
| AIR 486-33/DX2-66 256K 3VLB SLOTS(ZIF) | $440/$640 |
| AIR 486-33/DX2-66 256 EISA, 3VLB(ZIF) | $620/$820 |
| Asus 486DX-50/256Kw/2VLB(ZIF) | $540 |
| Asus 486DX2-66/256K w/2VLB(ZIF) | $600 |
| Diamond 486DX2-66/256K w/2 VLB | $715 |
| IBM SLC2-66 /64K w/2VLB | $285 |
| IBM SLC2-50 /64K | $185 |
| Nice 486DX2-66/256K EISA/VLB(ZIF) | $700 |
| Nice 486DX-50/256K EISA/VLB(ZIF) | $650 |
| Nice 486DX-33/256K EISA/VLB(ZIF) | $500 |
| Orchid 486DX2-66/256K w/2 VLB | $630 |
| Orchid 486DX-50/256K w/2 VLB | $580 |
| MicroStar486DX2-66/256Kw/2 VLB(ZIF) | $595 |
| MicroStar 486DX-33/128K w/2VLB(ZIF) | $380 |
| 486DX-33/128Kw/2 VLB | $365 |
| 486DX2-66/256K w/2VLB | $570 |
| 486DX-50/256K w/2VLB | $510 |
| 486DX-40/128K w/2VLB | $350 |
| 486SX-25-128K w/2VLB | $190 |
| 486DX-33/64K ISA | $350 |
| 486DLC-40/64K | $162 |
| 386DX-40/128K | $118 |
| 386SX-33 | $75 |

## POWER SUPPLY & CASE

| | |
|---|---|
| 200WPower Supply | $35 |
| 230WPower Supply | $40 |
| 250WPower Supply | $55 |
| 300WPower Supply | $65 |
| DesktopAT Case w/200W Power Supply | $54 |
| Mini-TowerCase w/200W Power Supply | $51 |
| MediumTowerCase w/250WPS | $82 |
| Full-Size Tower case w/250WPS | $112 |
| SuperTowerCase w300WPS | $190 |
| UPS 600VA | $250 |

## SOFTWARE

| | |
|---|---|
| Central Point Anti-Virus | $15 |
| Lotus1-2-3 for Windows | $290 |
| Microsoft DOS 5.0 (w/System Purchase) | $45 |
| MicrosoftExcel 4.0 for Windows | $265 |
| Microsoft Office 3.0 for Windows | $460 |
| Microsoft Project 3.0 for Windows | $410 |
| Microsoft Word for Windows | $265 |
| Microsoft Works for Windows | $65 |
| Microsoft Windows 3.1 (w/System Purchase) | $45 |
| Wordperfect 5.1(DOS) | $250 |
| Wordperfect5.2 for Windows | $260 |

## MICE

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|---|---|
| Impression 3-Button Mouse | $18 |
| Logitech FirstMouse | $35 |
| Logitech Mouseman | $56 |
| Logitech Mouseman(Cordles 2) | $88 |
| Logitech Trackan | $75 |
| Microsoft Mouse | $41 |
| MS Compatible Mouse | $10 |

## MULTIMEDIA

| | |
|---|---|
| CreativeLabsMIDI Kit | $42 |
| Creative Labs SoundBlaster Deluxe | $82 |
| CreativeLabsSoundBlaster Pro Deluxe | $114 |
| CreativeLabsSoundBlaster 16 | $145 |
| Creative Labs VideoBlaster | $306 |
| Creative Labs WaveBlaster | $175 |
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| CreativeLabs Discovery CD 8 Upgrade Kit | $370 |
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| LogitechSoundMan | $98 |
| MediaVision Pro 16 | $120 |
| MediaVision Pro Audio Spectrum 16 | $152 |
| MediaVision Pro Audio Studio 16 | $195 |
| MedisVision ProAudio Spectrum 16 External Kit | $45 |
| MediaVision Pro Movie Spectrum | $285 |
| MediaVision Pro MovieStudio | $320 |
| MediaVision Pro 16 Multimedia System | $780 |
| MediaVision Pro16 Multimedia System II | $835 |
| MediaVision Subsystem CDPC XL | $1065 |
| MediaVision Fusion CD 16 | $465 |
| MediaVision Fusion Double CD 16 | $575 |
| NECMultimedia Upgrade Kit | $750 |
| Labtec Speakers | $25 |
| Zoltrix Deluxe Speakers | $15 |

## MODEMS

| | |
|---|---|
| DataSystem PocketSize14400 Fax/Modem | $200 |
| DataSystemExternal14400 Fax/Modem | $160 |
| DataSystem14400 Fax/Modem w/16550 | $140 |
| Zoltrix 2400 Internal Modem w/send fax | $27 |
| Zoltrix 9600/2400 Internal Fax/Modem | $48 |
| Zoltrix 9600/2400 Int. Fax/Modem (Windows) | $53 |
| Zoltrix14400Internal Fax/Modem | $138 |
| Zoltrix 14400 External Fax/Modem | $160 |
| USRobotics14400/14400 Int. Fax/Modem | $165 |
| US Robotics 14400/14400 Ext. Fax/Modem | $185 |
| WANG 9600/2400 EXT .FAX/MODEM | $85 |
| INTEL 400 INT 144/144 V.42 ,V.32bis,MNP5 | $375 |

## TAPE BACKUP

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|---|---|
| 3MDC2120Tape | $18 |
| ColoradoAB-11 External Tape Port | $38 |
| ColoradoDJ-10 120MB Tape Backup | $128 |
| ColoradoDJ-20 250MB Tape Backup | $160 |
| Colorado FC-10 Tape Backup Controller | $85 |
| Colorado TC-15 Controller w/Compression | $185 |
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| ColoradoPT-50 4GB Int. Tape Backup | $1475 |
| ColoradoPT-50E 4GB Ext. Tape Backup | $1635 |
| ColoradoTrakker120MB Ext. Tape Backup | $285 |
| ColoradoTrakker250MB Ext. Tape Backup | $330 |
| Conner250MB Internal | $135 |
| Iomega250MB Insider Int. Tape Backup | $185 |
| SummitSE250 250MB Int. Tape Backup | $158 |

## MEMORY & CHIPS

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|---|---|
| 1MBx9 SIMM 60ns | $46 |
| 1MBx9 SIMM 70ns | $44 |
| 4MBx9 SIMM 60ns | $158 |
| 4MBx9 SIMM 70ns | $148 |
| 1 MBx36 SIMM 70ns | $175 |
| 2MBx36 SIMM 70ns | $365 |
| 4MBx36 SIMM 70ns | $640 |
| Cyrix387DX-40 | $60 |
| Cyrix387DX-33/25 | $58 |
| Cyrix 387SX-25/20/16 | $62 |
| Intel80387DX-33/25 | $75 |
| Intel80387SX-25/16 | $70 |

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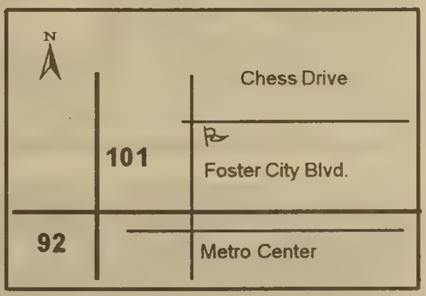

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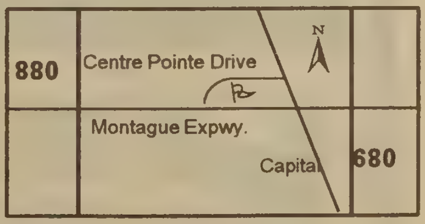

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# USER GROUPS

## AMIGA

**AAA—Amiga Addicts Anonymous.** Meetings: 3rd Tues., Concord Water District Bldg., 1311 Concord Ave. Classes, monthly disks, info line. Call: (510)935-0829. [Exp. #115.]

**AUM—Amiga Users Of Marin.** Meetings: 3rd Wed., 7:30 pm, College of Marin Science Center, Rm. 191, Kentfield. Desktop Video SIG, Rm. 192, 6:00 pm. Call: (415)479-6717. BBS: (415)485-5895. [Exp. #115.]

**AWEST Amiga Users In SF.** Meetings: 1st Thurs., 7:00 pm, Laguna Honda School, Conference Rm, 1350 7th Ave., San Francisco. Call: (415)584-8406. [Exp. #119.]

**FAUG—First Amiga User Group.** Meetings: 1st Tues., 7:30 pm, HT Electronics, 275 N. Matilda Ave., Sunnyvale. Q &A, new product demos, public domain software. Call: Mike Fisher, (415)855-9816; BBS: (415)595-2479; Usenet: mikef@vid.hp.com. [Exp. #117.]

**Original Amiga User Group.** Meetings: 2nd Wednesday Winner Circle Systems, 2618 Telegraph Ave., Berkeley. Call: Bob Krones (510)653-5689 [Exp. #119.]

**RE—AMIGA Redwood Empire Amiga User Group.** Meetings: 2nd Tues., 7:30 pm, Rohert Park Jr. HS, RM. C-5, 7165 Burton Ave., Rohnert Park. Call: (707)523-9978. BBS: (707)795-2717. [Exp. #115.]

## APPLE

**PAUG—Peninsula Apple User Group.** Meetings: 3rd Thurs., 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Beginners and advanced, question and answer, new product demos, public domain software. Call: (415)367-8657. [Exp. #118.]

**TVAUG—Tri-Valley Apple II User Group.** Meetings: 1st Wed., 7:00 pm, Glendale Federal Bank, 3101 Crow Canyon Rd., San Ramon. Software demonstrations, raffle, public domain software, question and answer session. Call: Jerry Carleton, (510)828-0959. [Exp. #118.]

## AT&T

**AT&T Computer Users Group.** Meetings: 1st Wed., 7:00 pm, 50 Fremont St., 40th Floor—near 1st and Mission, San Francisco. Refreshments, technical support, and informal discussions. Also, Sunnyvale DOS and UNIX groups. Call: Jim Lansing, (415)885-6631. [Exp. #119.]

**AT&T UNIX Users Group-South Bay.** Meetings: 3rd Wed., 7:00 pm, PM new user education. Call: Thad Floryan, (415)961-5157 or USNET: thad.cup.portal.com. [Exp. # 119]

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## ATARI

**ABACUS (Atari Bay Area Users Society).** Meetings: 1st Sat. 10:00 am, Christ Church Lutheran, Quintara St. at 20th Ave., San Francisco. Supporting Atari computer users. MIDI and DTP SIGs. Call: Riger Sinasohn, (415)469-7924. [Exp. #116.]

**Atari Unlimited.** National networking and support. Write: PO Box 691, Mountain View, CA 94042. Call: Patti Barbiero, (415)903-9787. [Exp. #117.]

**Bay Area Atari Users Group.** Meetings: 1st Mon., 7:30 pm, Agnews Aud., 2nd fl., San Jose. Write: c/o 3691 Eastwood Cir., Santa Clara 95054. Call: Joe Fischer, (408)988-3065. [Exp. #114.]

**STace—Atari Computer Enthusiasts.** Meetings: 3rd Thurs., 7:30 pm. AT&T Bldg., 3260 Sebastopol Rd., Santa Rosa. Call: Kim Remick, (707)795-8173. [Exp. #115.]

## CAD

**Contra Costa AutoCAD User's Group.** Meetings: 2nd Sat., 1:00 pm, 1333 Willow Pass Rd., Suite 203, Concord. All CAD users welcome. Call: (510)687-5666. [Exp. #119.]

## COMMODORE

**C=HUG (Commodore Hayward User Group).** Meetings: 2nd Sat., 2:00 pm, Palma Ceia Park. (510)531-3734. [Exp. #119.]

**CWEST Commodore 64/128.** Meetings: 1st Sat., 10:00 am, Excelsior Library, 4400 Mission, San Francisco. San Francisco. Call: (415)626-9946. [Exp. #119.]

## CONTACT MANAGEMENT

**Bay Area TeleMagic User Group.** Meetings: 4th Wed., 4:00 pm, Call: George Workman, (408)476-6385. [Exp. #115.]

## CORELDRAW

**CorelDraw User Group.** Meetings: 3rd Thurs., 6:00 pm, ACAD: Association of Corel Artists and Designers, Northern CA Chapter. Call: Matt O'Malley. 1-800-462-5763. [Exp. #114.]

## CP/M

**Silicon Valley Access DB Developers Group.** Meetings: 2nd Wed., 7:00 pm, Call: Craig Bauer, (408)745-7600. Fax-On-Demand info: (408)745-0740. [Exp. #115.]

## DEC

**BayLUG.** Meetings: approx. every six weeks. Users of DEC hardware. Call: Rich Taylor, (408)776-4978. [Exp. #114.]

## DESKTOP PUBLISHING

**Ventura Publishing User Group (formerly VPUG).** Meetings: 3rd Mon. (Sept.–May), 6:45 pm, 1800 Rollins Rd., Rm. 14, Burlingame. Call: Elinor Cruz, (415)366-5317. [Exp. #117.]

## IBM AND COMPATIBLES

**Berkeley PC User Group.** Meetings: 2nd Tues., 7:00 pm, Winners Circle Systems, 2618 Telegraph Ave., Berkeley. No charge, newsletter $24/yr, free PD library, beginner SIG, GeoEnsemble SIG. Call: Mel Mann, (510)526-4033. [Exp. #117.]

**EastBay FOG.** Meetings: 2nd Wed., 7:30 pm, Episcopal Church of St. John-in-Montclair, 1707 Gouldin Rd., Montclair. All microcomputers, MS-DOS, CP/M. Call: (510)653-2627. [Exp. #116.]

**Fremont PC User Group.** Meetings: Tuesday, September 28, 6:00 pm, Fremont Central Library. Topics: latest in public domain CD-ROMS & how to install a CD-ROM drive. Call: (510)795-4286 ext. 7. BBS: (415)652-1736. [Exp. #118.]

**Golden Gate Computer Society.** Meetings: 4th Mon, 7:00 pm, San Rafael Community Center, 618 B St., San Rafael. Free intro to computers class at 6:00 pm. Call: (415)927-2909. [Exp. #116.]

**San Francisco Business Computers.** Meetings: 4th Tues., 5:30 pm. For those who use computers in business. Visitors $5. Call: Jordan Rosenberg, (415)788-5338. [Exp. #117.]

**San Francisco PC Users Group.** Meetings: 3rd Tues., 6:15 pm SIGs, 7:30 pm General Meeting. Fort Mason, Bldg. A. Call: (415)979-5879. [Exp. #114.]

**Stanford Palo Alto Area User Group.** Meetings: Last Wed., 7:30 pm, Varian Aud., Stanford. Call: (415)329-8252. [Exp. #119.]

## INTERFACE DESIGN

**IICS Human Interface SIG.** Meetings: Last Tues., Medius IV, 52 Colin P. Kelley Jr. St., Suite 101, San Francisco. Come join us for a rowdy probing of workable and nonworkable interface designs. Call: (415)905-6959. [Exp. #115.]

## LEGAL

**SF Bar Assoc.** WordPerfect User Group. Meetings: 3rd Wed., noon, SF Bar Assoc. Boardroom, 7th fl., 685 Market St. Brown bag meetings. Call: (415)421-5650. [Exp. #119.]

## MACINTOSH

**A32 Macintosh User Group.** Meetings: 2nd Sat., 10:00 am, Sunnyvale Community Center, 550 Remington Ave., Sunnyvale. Question and answer, guest speakers, disks-of-the-month, bimonthly newsletter, $35 annual dues. (408)263-0398. [Exp. #118.]

**BMUG—Berkeley Macintosh User Group.** Meetings: Every Thurs., 6:00 pm, Physical Sciences Lecture Hall, UC Berkeley Campus. Call: (510)549-BMUG. [Exp. #115.]

**Diablo Valley Macintosh User Group (DVMUG).** Meetings: 3rd Tues., 7:00 pm, Old Republic Title Co., 3000 Clatyon Rd., Concord. Get together w/Mac and Performa users. Enjoyable SIG meetings. Call: (510)827-5775. [Exp. #116.]

**Gay Macintosh User Group.** Meetings: 4th Mon., 7:00 pm, New Conservatory Theatre, 25 Van Ness, San Francisco. GMUG is a nonprofit group open to everyone. Call: (415)552-GMUG. [Exp. #117.]

**International Macintosh Users Group (IMUG).** Meetings: 3rd Thurs., 7:00 pm, Apple Computer, R&D Campus, 1 Infinite Loop, Cupertino. A forum for people using Macintosh computers in different languages. Call: Roger Sherman, (415)859-5146. [Exp. #119.]

**Macintosh SIG.** Meetings: 3rd Tues., 7:00 pm, Apple Cafeteria, City Center 4, De Anza and Rodrigues, Cupertino. Sponsored by Software Entrepreneurs' Forum. Call: Jeff Cherniss, (408)356-9901, or Barbara Cass (408)854-7219. [Exp. #119.]

**PAUG—Peninsula Apple User Group.** Meetings: 3rd Thurs, 7:00 pm, Ampex Cafeteria, 411 Broadway, Redwood City. Beginners and advanced, question and answer, new product demos, public domain software. Call: Roger Laker, (415)367-8657. [Exp. #118.]

**SPC Apple User Group.** Meetings: 2nd Tues., 7:30 pm, Fremont Main Public Library. The Society for Prevention of Cruelty to Apple Computers Users Group supports all Apple and Macintosh computers. Call: Dean Fearn, (510)881-9160. [Exp. #119.]

**Stanford Macintosh User Group (SMUG).** Meetings: 1st Mon., 7:00 pm. Call: (415)363-2446. [Exp. #116.]

## MARKETING

**Marketing SIG.** Meetings: 4th Thurs., 7:00 pm, Cubberley Community Center, Rm. H-1, 400 Middlefield Rd., Palo Alto. SIG of Software Entrepreneurs' Forum. Call: Bill Ryan, (415)615-7906. [Exp. #117.]

## MULTIMEDIA

**Design SIG.** Meetings: 3rd Tues., 6:00 pm. For independent businesspeople in graphic arts and word processing. Topics related to running own business. Call: Bill Brent, (415)282-7368. [Exp. #118.]

**Multimedia SIG.** Meetings: 1st Thurs., 7:00 pm. SIG of Software Entrepreneurs' Forum. Call: Ralph Gilman, (408)746-0551. [Exp. #115.]

**Multimedia User Group.** Meetings: 1st Wed., 7:00 pm, Contract Design Center, Main Lobby, 600 Townsend St., San Francisco. $3 at door. Call: John Dowdell, (415)665-3916. [Exp. #116.]

**North Bay Multimedia Association (NBMA).** Meetings: 3rd Thurs., 7:00 pm, Semantic, Novato. Call: Lee Callister, (415)883-0449. [Exp. #117.]

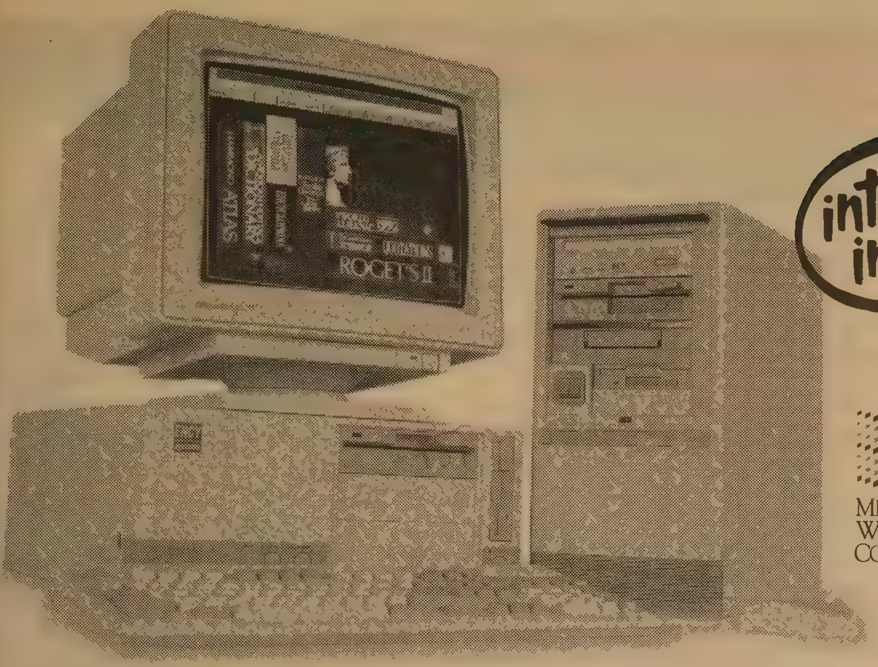
**SEF Multimedia SIG.** Meetings: 1st Thurs., 7:00 pm, Center for Software Development, 111 W. St. John Street, Suite 200, Downtown San Jose. SIG of Software Entrepreneurs' Forum. Call: Ralph Gilman, (408)746-0551. [Exp. #119.]

## NANOTECHNOLOGY

**Nanosystems Study Group.** Meetings: Alternate Mondays, 7:30 pm, University Lutheran Church, 1611 Stanford Ave., Palo Alto. The study group will go through Eric Drexler's book, Nanosystems: Molecular Machinery, Manufacturing, and Computation. Announcements and mailing list, contact: Ted Kaehler, email: Kaehler2@AppleLink.Apple.com. Phone: (408)974-6241. [Exp. #115.]

**The Assembler Multitude.** Meetings: every other Mon., 7:30 pm, University Lutheran Church, 1611 Stanford Ave., Palo Alto. An open discussion of new technical developments in Nanotechnology and social consequences and dangers of Nanotechnology.

*Continued*



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| 486DX-50-128K VLB | $490 |
| 486DX2-66-128K VLB | $560 |
| 486DX EISA VLB | $Call |
| UltraStor 24F EISA SCSI | $350 |

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- 2 Serial, 1 Parallel, 1 Game Ports
- 101 Enhanced keyboard
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Includes shadow ram for fast bios access
- Mini Vertical case with 200W power supply

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- 8K Internal, 256K external cache
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- 1.2MB and 1.44MB floppy drives
- 101 Enhanced keyboard
- Built-in math coprocessor
- Weitek coprocessor socket
- Clock/calendar w/battery backup
- Vertical case with power supply
- 3 Button High-Resolution Mouse

intel inside

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| **- 15" Flat Screen .28 1280x1024 NI** | **ADD $115** |
| **- 17" Viewsonic 7 Monitor 1280x1024 .28dp** | **ADD $605** |
| **- 17" Mitac Monitor NI 1280x1024 .28dp** | **ADD $345** |

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| Sportster 14.4 Modem Int | 159 |
| PM 14.4 Fax Modem Int/Ext | $209/225 |
| PM 14.4 Pocket Fax Modem | 354 |

### CONTROLLERS

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| 1542C SCSI w. Kit (10MB/s) | $245 |
| 2742A SCSI EISA /w.Kit (2F & 7H) | 389 |
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| ULT 15C IDE Cache | $189 |
| ULT 24F SCSI EISA Cache | 369 |
| ULT34F SCSI-2 VLB 32K | 275 |

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| Mono graphic/printer | 16 |
| XT high density floppy cont | 35 |
| Serial/printer/game/clock card | 14/14/14/14 |
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| VGA T9000 1024x768 512K | 49 |
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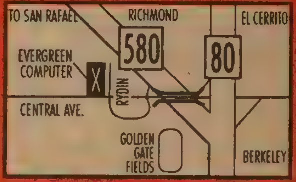

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| 1.0GB SCSI 14ms M2694ES10MS 3.5" | 925 |

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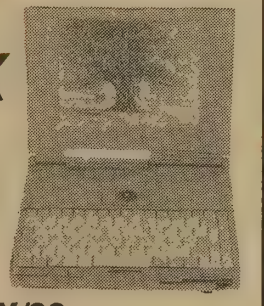

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| Orchid Fahrenheit VLB | 145 |
| Orchid Fahrenheit 1280 Plus VRAM | 119 |
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| Diamond Stealth 24VLB/ISA | 165 |

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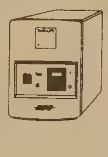

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| Panasonic KX-P4420 | N/A | 139 | 175 | 189 |
| IBM 4019 | 109 | 149 | 309 | N/A |
| Epson EPL-6000 | 140 | 155 | 190 | N/A |
| Epson EPL-7000 | N/A | 90 | 140 | N/A |
| Okidata 400/800 | 100 | 150 | N/A | N/A |
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**43.5 dBA!**

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| Peter and the Wolf | 19 |
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| Playing w/Languages - Japanese | 24 |
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| Pro Phone 1993 | 115 |
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| Reference Library by STW | 24 |
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| Seventh Guest-Virgin Games-DIS | 55 |
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| Shareware/Wk | 45 |
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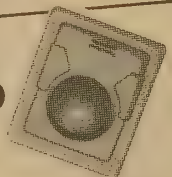

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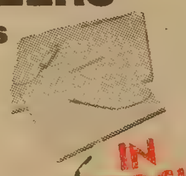

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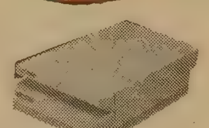

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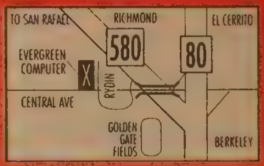

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# USER GROUPS continued...

Organized by Ted Kaehler. Email: Kaehler2@AppleLink.Apple.com. Address: 20525 Mariani Ave., MS 301-3D, Cupertino, CA 95015. [Exp. #115.]

## NETWORKING

**NetSIG.** Meetings: 4th Tues., 7:00 pm, Novell Sunnyvale. Networking SIG for Software Developers. SEF group. Call: Skip Addison, (408)283-3545. [Exp. #117.]

## NOVELL

**Silicon Valley Novell User Group.** Meetings: 3rd Wed., 6:30 pm, Sundowner Inn, 504 Ross Drive. Call: Stephanie or Beth, (408)522-8690. BBS: (408)739-8753. [Exp. #119.]

## OS/2

**Monterey Bay And NPGS OS/2 User Group SIG.** Meetings: 2nd Thurs., 7:00 pm, Spanagel Hall, Naval Postgraduate School, Monterey. Demos and product evaluations, question and answer sessions, assistance w/setup. Call: Michael Schievelbein, (408)656-2520 (days). [Exp. #115.]

**OS/2 Bay Area User Group.** Meetings: 4th Mon., 7:00 pm. For anyone interested in OS/2. Presentations, demos, q&a. Call: (415)755-3124. [Exp. #116.]

## PARADOX

**Bay Area Paradox User Group (bapals).** Meetings: 4th Tues., except June and July, 4th Wed., 4:30 pm, SF City College, 800 Mission St. Call: (415)995-4688. [Exp. #119.]

**SVCS Paradox SIG.** Meetings: 3rd Tues., 7:00 pm, Tandem Computers, Bldg. 251, 10100 N. Tantau, Cupertino. Membership: $12/yr. Call: Scott Jackson, (408)738-0424. [Exp. #114.]

## PEN COMPUTING

**Pen Software SIG.** Meetings: 4th Wed., 7:00 pm, Cubberley Community Center, Rm. H-1, 400 Middlefield Rd., Palo Alto. SIG of Software Entrepreneurs' Forum. Call: Bill McAlpine, (415)348-2257. [Exp. #117.]

## PROGRAMMING LANGUAGES

**SEF/SVCS Visual Basic SIG.** Meetings: 2nd Thurs., 7:00 pm, Cubberley Comm. Ctr., Rm. H-1, 4000 Middlefield, Palo Alto. Call: Allan Colby, (415)851-4657. [Exp. #117.]

**Silicon Valley FIG.** Meetings: 1st Mon. after 1st Sat., 7:00 pm, Membership in the Silicon Valley Chapter of the Forth Interest Group is separate from International FIG. Call: Henry Vinerts, (510)790-3945. [Exp. #115.]

**Silicon Valley Forth Interest Group.** Meetings: 4th Sat., 10:00–5:00 pm, Applied Biosystems, Inc., Conference Room A/B, 230 Lincoln Centre Dr., Foster City. Call: C.H. Ting, (415)571-7639. [Exp. #119.]

**Visual BASIC SIG.** Meetings: 2nd Thurs., 7:00 pm, Cubberley Community Center, 4000 Middlefield Rd., Rm. H-1, Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: Allan Colby, (415)851-4567. [Exp. #117.]

**Visual C++ Bay Area Developer's Group.** Meetings: 3rd Wed., 6:00 pm, Berkeley. For agends, location, and RSVP, Call: (510)254-9700, ext. 490. [Exp. #117.]

## TEXAS INSTRUMENTS

**TI-99/4A.** Meetings: 2nd Sat., Oakland. Call: Fred, (510)530-8335. [Exp. #115.]

## UNIX/XENIX

**N. California UNIX SIG.** Meetings: New group, just forming. UNIX, XENIX, LINUX, Coherent. Call: Randy Just, (707)769-1648. [Exp. #112.]

**UNIX SIG.** Meetings: 2nd Tues., DEC Aud., 130 Lytton Ave., Palo Alto. Sponsored by Software Entrepreneurs' Forum. Call: (415)546-4950. [Exp. #117.]

**UNIX/Xenix SVUG.** Meetings: 3rd Wed. 7:00 pm, Call: (408)745-7600. Fax-On-Demand info: (408)745-0740. [Exp. #116.]

## VIDEO TOASTER

**Video Toaster User Group.** Meetings: Last Thurs., 7:30 pm, HT Electronics, 275 N. Mathilda Ave., Sunnyvale. Special guests, equipment demos, hands-on workshops, plus info/tips on new System 3.0. Call: Andrew Timmins, (408)243-9233 (eve). [Exp. #115.]

## VIRTUAL REALITY

**Silicon Valley Virtual Reality.** Meetings: 2nd Thur., 7:00 pm, 922 Wedell Ct., Sunnyvale. Open forums, info sharing, and technology developments. Call: Algis normantas, (408)745-7600. [Exp. #116.]

**Virtual Reality Group.** Meetings: varies. VRG is a nonprofit organization dedicated to supporting and promoting the development of VR technologies in the Bay Area. Everyone welcome. Call: Linda Jacobson, (415)826-4716. Email contacts: Linda Jacobson (lindaj@well.sf.ca.us), Peter Rothman (avatarp@well.sf.ca.us), or Timothy Childs (tchilds@well.sf.ca.us). [Exp. #114.]

## WINDOWS

**BMUG Windows Programmers SIG.** Meetings: 1st Tues., 6:30 pm, 2055 Center St., Berkeley. The Programmers SIG is a forum for Windows programmers of all levels to meet and exchange information. Call: Ferdinand Rios, (510)526-3031. [Exp. #115.]

**Windows SIG North.** Meetings: 2nd Wed., 7:00 pm, Univ. of Calif. Richmond Field Station, 1301 S. 46th St., Bldg. 454, Richmond. Software Entrepreneurs' Forum. $10 for nonmembers. Call: Barbara Cass (415)854-7219. [Exp. #118.]

**Windows SIG South.** Meetings: 1st Wed., 6:30 pm, Cubberley Community Center, Room H-1, 4000 Middlefield Rd., Palo Alto. Software Entrepreneurs' Forum. $10 for nonmembers. Call: Barbara Cass, (415)854-7219. [Exp. #118.]

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# ASSOCIATIONS

**American Association For Artifical Intelligence Association.** Meetings: Individuals interested in learning about the use and application of AI. Call: Richard Skalsky, (415)328-3123, fax: (415)321-4457, email: membership@aaai.org. [Exp. #119.]

**The Association For Customer Support Professionals.** Dedicated to the deveopment and furtherance of customer support as a distinct profession, to the growth of the support community, and to the improvement of support service. Call: (510)865-4515. Internet: tao@well.sf.ca.us. [Exp. #114.]

**Association Of Information Systems Professionals (AISP).** Write: 922 Weddell Ct., Sunnyvale, CA 94090. Forums, support, network for IS Professionals. Many SIGs. Call: Al Normantas, (408)745-7600. Fax: (408)745-0740. [Exp. #116.]

**Computer Professionals For Social Responsibility.** Meetings: Last Sun., 2:00 pm, BMUG Offices, 2066 Center St., Berkeley. Call: Judy Stern, (510)643-7499. [Exp. #117.]

**Computer Software Industry Association.** CSIA monitors all state legislation which affects the computer software industry and some federal issues. Call: (415)948-9192. [Exp. #115.]

**IEEE Computer Society, San Francisco Chapter.** Meetings: alternating Weds., 7:30 pm, SF State. Call: (415)905-4400. [Exp. #118.]

**Independent Computer Consultants Association, Northern California Chapter.** Meetings: 7:30 am–9:15 am, Parc Fifty-Five Hotel, San Francisco. Open discussion, questions and answers. Call: (415)978-9416. [Exp. #119.]

**Independent Computer Consultants Association, Silicon Valley Chapter.** Meetings: 4th Thrus., 6:00 pm. Hobee's Resturant, 920 Town & Country Village, San Jose. Provides a network for independent computer professionals in South San Francisco Bay and Monterey Bay areas.. Call: Chapter Hotline, (408)492-8888. [Exp. #116.]

**National Association of Professional Organizers (NAPO).** Meetings: 2nd Wed., 6:30 pm, Westin San Francisco Airport Hotel in Milbrae. The cost for guests who preregister is $12; at the door, $15. Call: (415)461-3537. [Exp. #119.]

**North Bay Systems Professionals.** Meetings: 3rd Wed., 6:00 pm networking, 7:00 pm dinner, 8:00 pm speaker. Embassy Suites Hotel and Conference Center, 101 McInnis Parkway. NBSP provides a forum for systems professionals to grow and to benefit from a network of other like professionals. Call: (415)721-4409. [Exp. #119.]

**San Francisco Robotics Society Of America.** Meetings: 1st Wed., 8:00 pm, Exploratorium, San Francisco. Free. Call: Brad Smallridge, (415)550-0588. [Exp. #116.]

**Society For Technical Communication, Berkeley Chapter.** Meetings: 2nd Wed., 6:30 pm dinner, 7:45 pm program, Upstairs at Yenching Restaurant, 2017 Shattuck Ave., Berkeley. Different speaker every month. Call: (510)466-5464. [Exp# 119.]

**Society For Technical Communication, San Francisco Chapter.** Meetings: 3rd Wed., 6:00, program at 7:00 pm. Stagecoach Resturant, 44 Montgomery St., San Francisco. For technical writers, editors, and other technical communicators. Some meetings are dinner meetings, for which reservatins are necessary. Call: (415)985-7121. [Exp. #116.]

**Society For Technical Communication, Silicon Valley Chapter.** Meetings: 4th Thurs. 5:30 pm cocktails, 6:30 pm dinner, 7:15 dessert. Sunnyvale Hilton, 1250 Lakeside Drive (off Lawrence Expressway at 101). Guest speakers, special interest groups, networking, job listings, newsletter. Call: (408)578-0796. [Exp. #119.]

**Software Entrepreneurs' Forum.** 3rd Wed., 6:30 pm, Elk's Lodge, 4249 El Camono, Palo Alto. Industry association dedicated to software developers and entrepreneurs, offering information and education on all facets of the software industry. Call: Information, (415)854-7219; reservations, (415)965-9003. [Exp. #117.]

**United Sysops Association (U.S.A.).** Meetings: 2nd Wed, 7:30 pm, call for location. Call: Beth Hall, (408)522-8690. [Exp. #119].

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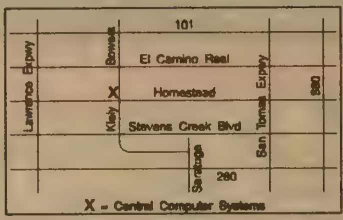

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# I BASIC SYSTEMS

## ORCHID
**(CAD STATION)**

Super Board
4 MB, TEAC 1.2 FD
Maxtor 130 MB HD, IDE Controller, 2S 1P
Mid Tower Case w. 220W
Mitsumi 101 Keyboard
EMC 1430 monitor 14" 1024x768 .28 NI
Fahrenheit VLB 1MB VGA
MS Serial Mouse, MS DOS 6.0 & WIN 3.1

| | |
|---|---|
| VLB 486-33, 256K cache | 1715 |
| VLB 486-50, 256K cache | 1850 |
| VLB 486-DX2-66, 256K cache | 1940 |

## MICRONICS
COMPUTERS INC.

4 MB, TEAC 1.2 FD
IDE Controller, 2S 1P
Baby AT Case w/ 200W
Mitsumi 101 Keyboard
MS Serial Mouse
MS DOS 6.0 & Windows 3.1

| | |
|---|---|
| 486-DX2-66 ISA 256K cache VLB | 1415 |
| 486-33 ISA 256K cache VLB | 1195 |
| 486-33 ISA 256K cache MiniBoard | 1185 |
| 486-50 ISA 256K cahce MiniBoard | 1295 |
| 486-DX2-66 ISA 256K cache MiniBoard | 1415 |

## NICE
**(MADE IN U.S.A)**

4 MB, TEAC 1.2 MB FD
IDE Controller, 2S 1P
Baby AT Case w. 200W
Mitsumi 101 Keyboard
MS DOS 6.0 & WIN 3.1
MS Serial Mouse

| | |
|---|---|
| 486-DX2-66 EISA 256K VLB | 1499 |
| 486-50 EISA 256K cache VLB | 1425 |
| 486-33 ISA VLB 256K cache | 1075 |
| 486-DX2-66 Mini EISA 256K cache VLB | 1345 |

## IBM PS/Value Point

With : 1.44MB FD, IDE Contorller, Keyboard, Mouse, I/O ports, SVGA
Case : AT ( DeskTop , 5 slots, 5 bays )
MT ( MiniTower, 8 slots, 6 bays )

with OS/2 & 8MB RAM :

| | | |
|---|---|---|
| 486 DX2-66 | 527MB HD, MT, VLB | 3295 |
| | 340MB HD, AT, VLB | 2745 |
| | 212MB HD, AT, ISA | 2350 |
| 486-DX-33 | 340MB HD, MT, VLB | 2525 |
| | 340MB HD, AT, VLB | 2345 |
| | 212MB HD, AT, ISA | 1765 |

with WIN & DOS & 4MB RAM :

| | | |
|---|---|---|
| 486 DX2-66 | 527MB HD, MT, VLB | 3125 |
| | 245MB HD, AT, VLB | 2395 |
| | 212MB HD, AT, ISA | 2125 |
| 486 DX-33 | 340MB HD, MT. VLB | 2325 |
| | 212MB HD, AT, ISA (special) | (1525) |
| | 120MB HD, AT, VLB | 1795 |

# II HARDWARE

## 1. CD ROM

| | |
|---|---|
| Sony CD Caddy | 6.95 |
| Altec ACS50 Speaker System | 69 |
| Jazz Hipster J-511AV Active Speakers | 75 |
| Labtec Speakers CS150/ CS180/ CS550 | 25/29/32 |
| Koss Maximum DR Amplified Speakers | 69 |
| Koss Amplified Mini Speakers w. Equalizer | 45 |
| Cardinal Digital Sound Pro 16 | 125 |
| Gallant Sound Card / Gravis UltraSound | 69/139 |
| Turtle Beach 16 bit MultiSound | (499)515 |
| **CREATIVE LAB** | |
| CD-ROM Upgrade Kit w. 4 CD Int | 375 |
| CD 531 Ext w. Ext Kit | 239 |
| Discovery CD-16 Int | 469 |
| Edutainment CD-16 Int Kit | 499 |
| Sound Blaster Pro Multimedia Kit w. 6 CD Ext | 459 |
| Sound Blaster Deluxe | 85 |
| Sound Blaster Pro Basic / Deluxe | 99/119 |
| Video Blaster / Video Spigot for Win | 315/345 |
| Voice Blaster / Wave Blaster | 75/224 |
| Midi Kit | 59 |
| **LOGITECH** | |
| Soundman 16 | 125 |
| **MEDIA VISION** | |
| Fusion Double CD 16 | 599 |
| Multimedia Upgrade Kit (w. Spectrum 16) | 679 |
| Midi Mate / w. Passport Design Trax | 49/89 |
| Pro 16 Multimedia System II Int | 859 |
| Pro Audio Spectrum 16 / Studio 16 | 155/199 |
| Pro Movie Spectrum / Studio | 285/335 |
| **MITSUMI** | |
| CRMC-LU005S w. controller | 169 |
| **NEC** | |
| CDR-74 280ms, 300KB/s, Ext | 485 |
| CDR-84 280ms, 300KB/s, Int | 425 |
| Interface Kit for PC | 79 |
| Multimedia Upgrade Kit Int / Ext | 795/855 |
| **ORCHESTRATOR** | |
| SoundPerfect 16 + Sony 31A + 6 CD | 429 |
| SoundPerfect 16 + Toshiba 3401B + 6 CD | 659 |
| **PANASONIC** | |
| 562 320ms, 300Kb/s Int / w. controller | 229/249 |
| **SONY** ( w/o software ) | |
| CD 31A w. controller Int | 169 |
| **TEXEL ( w. controller** | **add $49 )** |
| DM-3024 265ms, Internal | 319 |
| DM-3028 280ms, Internal | 365 |
| DM-5028 280ms, External | 485 |
| Driver kit for Media Vision Int / Ext | 29/69 |
| **TOSHIBA ( w. contoller** | **add $49 )** |
| 3401B 200ms 330KB/s Int | 365 |
| 3401E 200ms Ext / w. Toshiba Case | 479/519 |
| Driver kit for Media Vision Int / Ext | 29/69 |
| **TRANTOR** | |
| Mini SCSI Plus (Parallel to SCSI Adapter) | 189 |
| Music Box v.2 | 29 |
| T130 SCSI Interface Kit (w/o cable) | 49 |

*CD SOFTWARE Titles - See Sec. III*

## 2. CASES

| | |
|---|---|
| Baby AT w. 200W Power | 69 |
| Baby Tower w. 200W Power | 69 |
| Mid Tower w. 230W Power | 79 |
| Mid Tower w. 250W Power: Black/ White | 139/129 |
| Full Tower w. 250W Power | 129 |
| Full Tower w. 300W Power: Black/ White | 199/189 |
| Slim w. 200W (2 drive bay) | 79 |
| Hard Disk Drive External Casing | |
| - 1 half ht or SCSI for Mac, 40W, w. Int cable | 85 |
| - 2 half ht or 1 full ht for PC , 60W | 119 |
| - 2 half ht or 1 full ht for Mac, w. cables 60W | 145 |
| - 3 half ht or 1 full &1 half ht for PC, 60W | 139 |
| - 3 half ht or 1 full &1 half ht for Mac, w. cables | 165 |

## 3. CONTROLLERS

| | |
|---|---|
| COREL SCSI software | 75 |
| **ACCULOGIC** | |
| sIDE-4 plus (2FD & 2IDE HD, 2S & 1 P ) | 49 |
| **ADAPTEC** | |
| 1522K SCSI w. Kit (3MB/s) | 159 |
| 1542C SCSI w. Kit (10MB/s) | 249 |
| 1542C Plus w. ASW 500 | 315 |
| 1640 SCSI w. Kit for MCA | 335 |
| 2742T SCSI EISA w. Kit | 399 |
| 2842VL SCSI VLB w. Kit | 315 |
| ASW-1410 ASPI MS-DOS Manager v3.0 | 69 |
| ASW-EZ SCSI for DOS & WIN | 69 |
| ASW-310 Sy-Tos Plus (tape backup s/w) | 99 |
| **ALWAY TECHNOLOGY** | |
| IN 2000 High Performance 16 bit SCSI | 179 |
| **AMI** | |
| FastDisk cache SCSI EISA (up to 16MB) | 475 |
| FastLan Ethernet-SCSI VLB | 465 |
| **BUSLOGIC** | |
| BLI-KT 542B SCSI-2 w. Kit (5Mb/s) | 225 |
| BLI-KT 545S Fast SCSI-2 w. Kit (10Mb/s) | 229 |
| BLI-KT 742A EISA SCSI-2 w. Kit | 339 |
| BLI-KT 747S EISA Fast SCSI-2 w. Kit | 389 |
| BLI-BT 445S SCSI VLB w. Kit | 275 |
| **DTC** | |
| 2290 IDE EISA | 139 |
| 3280AS SCSI | 105 |
| **FUTURE DOMAIN SCSI Controller** | |
| TMC 1660 for AT (H only) | 119 |
| TMC 1680 for AT (4F& H,15MB/s) | 129 |
| TMC 1680 SVP (SCSI value pack) | 155 |
| **KOUWELL** | |
| 4 Floppies controller for XT,AT | 33 |
| IDE controller only | 27 |
| IDE w. AT I/O (2S 1P 1G) | 34 |
| IDE w. NS16550 chips (2S 1P 1G) | 59 |
| IDE w. AT I/O (2S 1P) VLB | 55 |
| IDE w. AT I/O (2S 1P) w. 16550 chips VLB | 79 |
| **MYLEX** | |
| DCE 376 EISA SCSI | 550 |
| **NCL America ( w. on board Bios )** | |
| 538B IDE for AT (2HD & 2FD) | 39 |
| **ORCHID** | |
| VLB IDE (2HD,2FD) w. AT I/O | 79 |
| **PROMISE Drive Cache Controller** | |
| DC 200 IDE cache up to 16MB | 105 |
| DC 2040 SCSI cache up to 16MB | 179 |
| - Bios chips & CD driver | 39 |
| DC 4030VL IDE VLB cache up to 16MB | 139 |
| **ULTRASTOR (w/o cable)** | |
| ULT 14F ISA SCSI 32K cache | 199 |
| ULT 24F SCSI EISA 64K cache | 365 |
| ULT 34F VLB SCSI-2 32K cache | 275 |
| **WONDER SYSTEMS ( USA made )** | |
| IDE w. 4 Floppies | 29 |
| IDE w. 4 FD/ 2.88MB/ w. drivers tape , 1.0 Mbps FD speed | 39 |
| IDE w. 2HD/ 4FD/ 2S 1P/ w. drivers tape , 5IRQ for com ports, 1.0 Mbps FD speed | 45 |
| IDE w. 4FD/ 3S 2P 1G (2S16550 chips) | 79 |
| For SCSI HD, w. CD-ROM drivers | 59 |
| VL2000 IDE w. AT I/O VLB | 49 |
| VL2018 IDE 2HD/4FD/2S/1P/16550/2.88 | 69 |

## 4. CPU

| | |
|---|---|
| AMD386 DX-40 | 69 |
| **INTEL** | |
| 386 DX-25 / DX-33 | 69 |
| 486 DX-33 / DX-50 | 289/429 |
| 486 DX2-50 / DX2-66 | 339/489 |
| *MATH CO PROCESSOR* | |
| **CYRIX** | |
| 83D87 - 33 / 40 | 69/69 |
| Cx486 DLC TI 33 / 40 | 79/99 |
| INTEL | |
| 387DX / 387SX | 85/79 |
| OverDrive Processor | |
| - 486 SX16 / SX20 | 325 |
| - 486 SX25 / DX25 | 445 |
| - 486 SX33 / DX33 | 545 |
| Cooling Fan (heat sink) | 19.50 |

## 5. DIGITIZERS

| | |
|---|---|
| SummaSketch III 12x12, 4 or16 button | 275 |
| SummaSketch III 12x18, 4 or16 button | 549 |
| **WACOM** | |
| SD-510C 6 x 9, w. Pressure Stylus | 459 |
| SD-510C Tablet + Painter 2.0 (special) | (499) |
| SD-420E 12 x 12, w. Pressure Stylus | 655 |
| SD-420E Tablet + Painter 2.0 (special) | (699) |

## 6. DRIVES

| | |
|---|---|
| Frame for 3.5" Hard Drive and Floppy Drive | 6 |
| Removable Hard Drive Case for 3.5" HD | 39 |
| *HARD DRIVES* | |
| **CONNER** | |
| CP30174E 170MB 18ms IDE 3.5", 1" ht | 175 |
| CP-30254H 250MB 14ms IDE 32K 1" ht | 215 |
| CP-30344 340MB IDE | 275 |
| CP-30544 544MB 12ms IDE 1" ht | 499 |
| **FUJITSU** ( 5 years warranty by manufacturer ) | |
| 2624FA 520MB 12ms SCSI-1&2 | 579 |
| M2694ESA 1.0GB 10ms SCSI-2 3.5" 1/2"ht | 919 |
| M2654S 2.1GB 12ms SCSI-2 5.25" full | 1679 |
| **MAXTOR** | |
| MXT 7131A 130MB 15ms IDE 3.5" | 169 |
| MXT 7213A 213MB 15ms IDE 3.5" | 205 |
| LXT 7345A 345MB 14ms IDE 3.5" | 285 |
| MXT 7345S 345MB 15ms SCSI 1" ht | 345 |
| MXT 540A 540MB 8.5ms IDE 1" ht | 715 |
| MXT 540SL 540MB 8.5ms SCSI-2 1"ht | 715 |
| MXT 1240S 1.2GB 8.5ms SCSI-2 3.5" | 1195 |
| PO-12 1.2GB 13ms SCSI | 875 |
| PI-17S 1.7GB 13ms SCSI | 1115 |
| Optical Drives : Rewritable 1 GB 35ms SCSI Ext Tahiti II / 1 GB Cartridge Glass | 2595/199 |
| **QUANTUM** | |
| EIS 127AT 127MB 17ms IDE 32K cache | 169 |
| EIS 170AT 170MB 17ms IDE | 185 |
| LPS-240AT 244MB 16ms IDE 256K cahce | 225 |
| LPS-240S 244MB 16ms SCSI 256K cache | 245 |
| LPS-525S 525MB 10ms SCSI 512K cache | 555 |
| PRO-700S 700MB 10ms SCSI-2 512K | 745 |
| PRO-1225S 1.2GB 9ms SCSI 1.2M cache | 969 |
| *FLOPPY DRIVES* | |
| **MICRO SOLUTIONS (External Floppy Drive)** | |
| 1.2 / 1.44 (use printer port) | 175 |
| **SYQUEST** | |
| SQ44e 44MB Ext w. controller & cartridge | 325 |
| **TEAC (Floppy Drive)** | |
| 1.2MB 5.25" / 1.44MB 3.5" w. frame | 48/42 |
| 2.8MB 3.5" w. frame | 85 |
| Dual Floppy 1.2MB & 1.44MB | 115 |

## 7. I/O CARDS

| | |
|---|---|
| BOCABoard w. cable 4 / 8 / 16 port | 99/149/299 |
| **KOUWELL** | |
| 2S 1P 1G w. NS16550 chipset (XT, AT) | 49 |
| 4 Serial ports card | 69 |
| AT I/O (2S 1P) / AT I/O (2S 1P 1G) | 27/27 |
| AT I/O (2S 2P) | 33 |
| AT I/O w. IDE (2S 1P 1G) | 34 |
| Printer card (2P) / Serial card (XT, AT) | 15/15 |
| **QUICKPATH** | |
| 13 port I/O w. 4-16550UARTs + Extd. IRQs (2 IDE, 4F, 4S, 2P, 1G) | 125 |
| 4-serial, 16550UARTs, 8addr, 10 IRQ (3,4,5,7,9,10,11,12,14,15 ) | 99 |
| **STB 4-COM** | |
| 4 serial, 16 bit, w.16554, support COM 1-8, IRQ 2,3,4,5,10,11,12,15 | 109 |
| **SIIG** | |
| 2S 1P w. 16550 chipset | 49 |
| **WONDER SYSTEMS ( USA made )** | |
| 4S 3P ( 16 bit, 8IRQ, 16550 FIFO ) | 135 |

## 8. KEYBOARDS

| | |
|---|---|
| **FOCUS** | |
| FK2001 101 click | 42 |
| FK9000 129 keys Programmable | 65 |
| **NORTHGATE OMNI** | |
| 101S / 101NI / 102 | 55/69/69 |
| Ultra T or F | 95 |
| **SIIG** (click) | |
| Suntouch Jr. 84-key Mini | 45 |
| Suntouch 101 | 49 |
| **OTHERS** | |
| BTC 84-key Mini | 37 |
| KeyCat II 101 w. trackball mouse | 69 |
| Keytronic 101 | 37 |
| New Maxi / Maxi 101 / Maxi Key 124 | 29/35/69 |
| Mitsumi 101 | 30 |
| PT505C 101 | 25 |

## 9. MEMORY CARDS

| | |
|---|---|
| **ACCULOGIC** | |
| RAMpAT! up to 16MB(SIMM),16 bit, AT | 99 |
| SIMM-ply Ram 8/16 bit, 8MB max, XT, AT | 99 |
| SIMM-ply Ram 16 bit, 8MB max, PS/2-50,60 | 119 |
| **INTEL** | |
| Above Board w. 512K (special) | (99) |

## 10. MEMORY CHIPS

| | |
|---|---|
| **DRAM** | |
| 1 MB x 1 - 80 ns | 5.80 |
| 64K - 100 ns / 256K - 80ns | 1.39 |
| 64K x 4 - 80ns / 256K x 4 - 80ns | 1.65/4.80 |
| **SIMM** | |
| 16 MB x 9 - 70 ns | call |
| 4 MB x 9 - 60 / 70 ns | call |
| 1 MB x 9 - 60 / 70 / 80ns (3 chips) | call |
| 256K x 9 - 70 ns | call |
| 1 MB x 36 - 60 / 70 ns | call |
| 4 MB x 36 - 70 ns | call |
| SIMM Mac : 4 MB x 8 - 70 | call |
| **SIPP** | |
| 1 MB x 9 - 70 ns (3 chips) | call |
| **COMPUTER MEMORY ( 3rd Party ) :** | |
| IBM PS/2 50Z/ 55SX/ 65SX/ 70 -- 2MB / 4MB | 89/159 |

| | |
|---|---|
| IBM PS/2 80 - 111/ 311/ 121/ 321 (2MB) | 115 |
| - PS/2 80 - A21/ A31/ A6 (4MB) | 279 |
| COMPAQ | |
| - Deskpro 386N/ 386S/ 20 | |
| -- 2MB / 4MB | 105/175 |
| - Deskpro 386 - 20e/ 20/ 25e | |
| -- 1MB / 4MB | 95/189 |
| - Deskpro 486M -- 2MB /4MB /8MB | 109/169/309 |
| - LTE 286 -- 1MB / 2MB | 79/109 |
| - LTE 386S/ 386-20 | |
| -- 1MB / 4MB card | 89/195 |
| - SLT 286 -- 1MB / 4MB | 99/259 |
| - ProLinea 386 - 25ZS/ 25S | |
| -- 2MB / 8MB | 105/375 |
| - ProLinea 486 - 33/ 50/ 25S | |
| -- 2MB / 4MB / 8MB | 95/159/299 |
| **KINGSTON MEMORY for** | |
| Apple, AST, AT&T, Compaq, IBM, NEC,Sun | call |
| **NOTEBOOK / LAPTOP ( 3rd Party )** | |
| AST EXEC 4MB | 139 |
| COMPAQ | |
| - Contura -- 2MB / 4MB / 8MB | 105/165/295 |
| - LTE 20/ 25 | |
| -- 2MB / 4MB / 8MB | 125/189/340 |
| IBM L40SX/ N33SX | |
| -- 2MB / 4MB / 8MB | 125/189/330 |
| MAC PowerBook 140/ 170 | |
| -- 2MB / 4MB | 135/179 |
| NEC UltraLite III SL25C | |
| -- 2MB / 4MB / 8MB | 139/249/435 |
| Packard Bell 386SX -- 2MB / 4MB | 155/259 |
| Panasonic 170/ 270/ 370 (1MB) | 79 |
| TOSHIBA | |
| - T2200SX 4MB / 8MB | 179/299 |
| - T3200 3MB | 189 |
| - T3200SX 2MB / 4MB | 105/169 |
| - T3100SX 2MB / 4MB | 109/167 |
| - T5100/ T13100/ T1600 2MB | 115 |
| - T8500/ T5200 2MB / 8MB | 125/339 |
| **LASER PRINTER MEMORY UPGRADE** | |
| *Jet Ram ( 3rd Party ):* | |
| EPSON EPL 6000 | |
| -- 2MB/ 4MB | 129/199 |
| HP | |
| - Deskjet 500/500C -- 256K | 75 |
| - Laser Jet IIP+/ III/ IIIP/ IIID | |
| -- 1MB / 2MB / 3MB / 4MB | 79/125/169/215 |
| - Laser Jet II/ IID | |
| -- 1MB / 2MB / 4MB | 99/145/235 |
| PANASONIC | |
| - KX-P4410/ 4430 | |
| -- 1MB / 2MB / 4MB | 95/139/229 |
| - KX-P4420/ 4450i | |
| -- 1MB/ 2MB/ 4MB | 99/145/235 |
| - KX-P4450 --1MB | 139 |
| - KX-P4455 --2MB | 169 |
| QMS | |
| - P-S 410 -- 1MB / 2MB / 4MB | 99/145/235 |
| - P-S 815/ 825 | |
| -- 2MB / 4MB | 159/249 |
| TEXAS INSTRUMENTS | |
| - Micro Writer --1MB | 69 |
| *PACIFIC DATA:* | |
| Pacific 4 for HP IIP+/ IIIP/ III/ IIID | |
| -- 1MB / 2MB / 4MB | 89/135/225 |
| 1-2-4 Plus for HP II/ IID | |
| -- 1MB / 2MB / 4MB | 115/159/249 |
| Pacific 4 SIMM for HP 4/ IIISi/ XL300 | |
| -- 4MB / 8MB | 199/389 |
| ProTracer -- 5MB / 8MB | 375/525 |

## 11. MODEMS & FAX

| | |
|---|---|
| ASAP TF-333 Phone & Fax Auto Switching | 89 |
| National Semi TyIN 2000 Answer/Fax | 175 |
| Micc Global Pocket Fax, Tripple 96 | 139 |
| **Adtech Micro Systems** ( DOS & WIN ) | |
| Data Fax 9624Vi, MNP5 | 99 |
| Hi - Per 96/144, MNP5 | 199 |
| Pocket 96/24 Fax | 115 |
| Pocket 144/144 Fax | 269 |
| **E-Tech** | |
| Ufomate Pocket Fax modem (w. Win/DOS s/w) | |
| - P1496MX / P9696MX | 225/185 |
| - P1414MX (Distinguish ring & Called ID) | 259 |
| **FRECOM (special)** | |
| Fax 96 w. 1 Liner & Far Fetch Fax | 115 |
| Fax 96 & modem for DOS (special) | 85 |
| **GVC** | |
| 14.4 Fax Modem Int / Ext | 159/179 |
| **HAYES** | |
| Accura 2400 Int / Ext | 49/55 |
| Accura 96 + Fax Int / Ext | 199/229 |
| Accura 14.4 + Fax Int / Ext | 215/245 |
| Optima 96 Ext + Fax 96 | 375 |
| Optima 144 Ext + Fax 144 | 389 |
| Pocket edition 2400 w. Smartcom EZ | 129 |
| Ultra 96 v.42, MNP5 Ext | 545 |
| Ultra 144 v.32bis, v.42, v42bis Ext | 575 |
| V-series SmartModem 9600 v.42, MNP5 Ext | 499 |
| **INTEL** | |
| Faxability Plus/OCR for WIN trade-up | 99 |
| SatisFaxtion modem (w. FAXability s/w) | |
| - 100 Int send96 rec.48, 2400 modem | 99 |
| - 200 Int 96/24 v.42, MNP5 | 245 |
| - 350 Int 14.4 Fax / 96 modem v.42bis | 285 |
| - 400 Int 144/144 v.42, v.32bis, MNP5 | 295 |
| - 400e Ext 96/14.4, 4K data buffer | 335 |
| New Fax Modem 24/96 Int | 55 |
| New Fax Modem 24V/96 v.42bis Int / Ext | 119/129 |
| New Fax Modem 96 Int / Ext | 159/175 |
| New Fax Modem 14.4 Int / Ext | 179/199 |
| **MEGAHERTZ** | |
| PCMCIA 14.4 Fax modem / w. X-Jack | 445/459 |
| PCMCIA 96/24 Fax modem w. X-Jack | 299 |
| PZ144 Pocket 14.4/14.4 | 415 |
| **MICROCOM** | |
| Microporte 4232bis Fax modem | 465 |
| QX 4232bis / QX 4232bis + modem | 455/575 |
| **PRACTICAL PERIPHERALS** | |
| PM14.4FX14.4 Int | 219 |
| Pocket 14.4 Fax Modem | 369 |
| Mini Tower 96/96 Ext / 14.4/14.4 Ext | 209/235 |
| PM2400 Mini pocket modem | 119 |
| FaxMe (turn HP Laser to Fax receiving) | 175 |
| **SHIVA** | |
| Net Modem/E Ethernet BNC/TP | 1475 |
| **SIIG** | |
| TeleCommunicator 10-in-1 Fax Modem | 229 |
| **US ROBOTICS** | |
| Courier 144 v.32bis, v.42, MNP5 Int | 375 |
| Courier 144 v.32bis, v.42, MNP5 Ext | 385 |
| Courier 144 w. Fax Ext | 399 |
| Courier HST-DS 144 v.32bis, v.42, MNP Ext | 725 |
| Sportster 96 modem MNP5 Int/ Ext | 149/149 |
| Sportster 96/96 Fax Ext | 159 |
| Sportster 14.4/14.4 FAX MNP5 Int/ Ext | 169/189 |
| Sportster 14.4/14.4 Fax for Mac Ext | 209 |
| Shared Access Modem Sharing Kit | 675 |
| **ZOLTRIX** | |
| 2400 baud modem w. MNP5 Int | 39 |
| 96/24 send & rec. fax/modem w. MNP5 Int | 69 |
| 96/24 fax/modem v.42, MNP5 Int | 99 |
| 14.4/14.4 fax/modem Int. | 159 |
| **ZOOM** | |
| AFC Int / AFX Ext | 59/79 |
| FC9624V w. WinFax Lite Int | 85 |
| FX9624V w. WinFax Lite Ext | 89 |
| 96/96 w. WinFax Lite Int/ Ext | 189/199 |
| 144/144 w. WinFax Lite Int/ Ext | 205/219 |
| **ZY-XEL** | |
| U1496B 16.8 voice 14.4 Fax WINs/w Int | 345 |
| U1496B+ upgradable to 19.2Kbps Int | 455 |
| U1496E 16.8 voice 14.4 Fax WIN, LED Ext | 349 |
| U1496E+ upgradable to 19.2Kbps Ext | 459 |

## 12. MONITORS

| | |
|---|---|
| Monitor Saver | 45 |
| 9" VGA Mono paper white 640 x 480 | 135 |
| **SIIG** | |
| 9" Mono paper white | 115 |
| **EMC** | |
| EM 1412 14" Mono amber, 90-260v | 95 |
| EM 1428 14" 1024x768 .28, 90-260v | 269 |
| EM 1430K 14" 1024 x 768 .28, NI, 90-260v | 299 |
| EM 1439G 14" 1024 x 768 :39 | 229 |
| **HITACHI** | |
| CM2095 20" 1280 x 1024, .31 w/0 cable | 1325 |
| CM2187 21" 1600 x 1280, .31 w/o cable | 2095 |
| Accuvue PS20 20" 1600 x 1280, .28 | 1695 |
| Accuvue PS21AM 21" 1600 x 1280, .28 | 2395 |
| **IBM PS/Value Point** | |
| 6312 14" 1024x768 .28, NI | 399 |
| 6314 14" .28, NI w. Digital Pro Control | 445 |
| 6319 15" Flat 1024x768 .28, NI | 559 |
| **MAG** (Auto Switch Power Supply) | |
| MX15F MPRII 15" Flat 1280x1024 .28, NI | 495 |
| MX17F MPRII 17" Flat 1280x1024 .26, NI | 925 |
| Mac Adapter | 25 |
| **M VIEW** | |
| L1428 14" Mono Amber | 95 |
| **MITSUBISHI** | |
| HL6955SETK 20" 1280x1024 .31, NI | 1745 |
| Diamond Pro(TFS 6705) 17" 1280x1024 .26 | |
| NI,Trinitron, MacII, 100-240v | 1045 |
| BNC Cable | 39 |
| **NANAO** ( 100-240v ) | |
| F340iW 15" Full Flat screen,1024x768 .28 | 685 |
| F550iW 17" 1280 x 1024 .28, NI, Mac | 1095 |
| F560iW 17" 1280 x 1024 .28, NI | 1375 |
| T560i 17" 1280x1024 .25, NI, MacII | 1675 |
| T660i 20" 1280x1024 .31, NI, Trin. , MacII | 2395 |
| F750i 21" 1280x1024 .31, NI, MacII | 1995 |
| MacII cable adapter | 69 |
| **NEC** ( 120v ) | |
| 3FGe 15" 1024x768 .28, Mac | 589 |
| 4FGe 15" Flat 1024x768 .28, NI, Mac | 689 |
| 5FG 17" 1280 x 1024 NI | 1345 |
| 5FGe 17" 1024x768 .28 NI (no Accu color) | 1075 |
| 6FG 21" Flat 1280x1024 .28, Mac | 2395 |
| NEC Monitor Lens ( Anti-reflection, Anti-static ) | |
| - for 4FG / 5FG / 6FG (special) | (65)/(105)/185 |
| FG / MacII cable adapter kit | 19.50 |
| **PANASONIC** ( 90-140v ) | |
| C1381i 14" SVGA 1024x768 .28, Int, MacII | 325 |
| C1395 14" 1024x768 .28, NI, MacII | 435 |
| C1991 20" 1024x768 .31, NI, MacII | 1395 |
| **SAMSUNG** | |
| CSA7571 17" 1024x768 .31 | 755 |
| CSF7487 17" 1280x1024 .26, NI, 90/264v | 899 |
| **SEIKO** ( 90-132v ) | |
| CM1450 14" 1024x768 .25, NI | 425 |
| CM2050 20" 1024x768 .31, NI, Mac | 1445 |
| **SONY** | |
| 1430S 14" 1024x768 .25, NI, 120v | 599 |
| 1604S 17" 1024x768 .25, NI, 100-240v | 925 |
| 1730 17" 1024x768 .25, NI | 995 |
| 2038 20" 1280x1024 .30, NI | 2295 |
| **VIEWSONIC** | |
| 4e 14" 1024x768 .28, Int,110/220v | 279 |
| 5+ 14" 1024x768 .25, NI, MacII | 475 |
| 6e 14" 1024x768 .28, NI | 299 |
| 15 15" 1280x1024 .28, NI, Mac II | 499 |
| 17 17" 1280x1024 .28, NI, Mac II | 1095 |
| 20 20" 1600x1280 .28, NI, Mac II | 1725 |
| 21 21" 1600 x 1280 .26 NI, Mac II | 1995 |
| Mac cable adapter | 35 |

## 13. MOTHERBOARDS

| | |
|---|---|
| 386-33 w. 128K cache (no cpu) | 125 |
| 386-40 w. 128K cache (no cpu) | 129 |
| 486-33 128K ISA (no cpu) | 135 |
| 486-DX2-66 256K VLB w. Zip socket (no cpu) | 149 |
| **AIR** (w/o cpu) | |
| 486-33 / DX2-66 256K EISA, 3 VLB slots | 425 |
| **ALARIS (by IBM)** | |
| 486SLC2-66 64K VLB w. CPU & Math Pro | 420 |
| **AMI** | |
| Super Voyager 486-33 256K VLB | 795 |
| Super Voyager 486 DX2-66 VLB | 1099 |
| Enterprise II 486-50 EISA 128K | 995 |
| Enterprise III 486-33 256K VLB EISA | 875 |
| Enterprise III 486 DX2-66 VLB EISA | 1095 |
| Enterprise IV 486-33 256K VLB EISA | 975 |
| Enterprise IV 486 DX2-66 256K VLB EISA | 1195 |
| **IBM** | |
| 486SL-C2-33 / 66 16K internal cache ISA v.2 | |
| w. CPU & Math Processor | 285 |
| **LYNX** ( made in USA, w/o cpu ) | |
| 486DX - 33 / 50 / DX2-66 256K VLB | 149 |
| **MICRONICS** | |
| 386SX-20 Phoenix BIOS (32MB max) | 175 |
| 386-33 64K cache Gemini (32MB max) | 299 |
| 486-33 Local Bus w. 256K cache | 635 |
| 486-DX2-50 VLB w. 64K / 256K | 595/695 |
| 486-DX2-66 Local Bus w. 256K cache | 845 |
| JX30 486-DX2-66 VLB 256K w. Zip socket | 920 |
| 486-33 256K EISA VLB | 845 |
| 486-50 256K cache EISA E2 | 1195 |
| 486-DX2-66 256K EISA VLB | 1045 |
| MiniBoard 486-33 256K cache ISA | 625 |
| MiniBoard 486-50 256K cache ISA | 735 |
| MiniBoard 486-DX2-66 256K ISA | 845 |
| 16MB Memory Card | 150 |
| **NICE** (w/o cpu) | |
| 486-33 / DX2-66 256K VLB | 215 |
| 486-50 / DX2-66 256K Mini EISA VLB | 265 |
| 486-50 / DX2-66 256K EISA VLB | 425 |
| **ORCHID** (w/o cpu) | |
| Superboard 486 (VLB for VGA & controller) | |
| - DX33/ DX50/ DX2-66 256K | 185/199/185 |
| **QUICK-PATH** | |
| 486-50 w. 64K cache, 15ns ISA (no cpu) | 235 |

## 14. MOUSE

| | |
|---|---|
| JOYSTICK : | |
| Gravis Game pack | 29 |
| Warrior 5, Quick shot | 14.50 |
| Adapter kit | 16.50 |
| **THRUSTMASTER** | |
| Flight Control System | 75 |
| Fight Control System Pro | 125 |
| Rudder Control | 125 |
| Weapons Control MK II (special) | (119)139 |
| **AGILER** | |
| AGM-600E Serial 400 dpi | 23.50 |
| ATB-610 Serial Trackball | 24.50 |
| Keen | 12.50 |
| **APPOINT (portable)** | |
| MousePen Pro | 49 |
| Thumbelina | 49 |
| **KENSINGTON** | |
| Expert serial & trackball | 99 |
| **LOGITECH** | |
| Cordless II (new) | 85 |
| Dexxa Serial / First Serial | 27/37 |
| Fotoman Plus Camera for PC & PS/2 | 549 |
| Mouseman Bus / Serial | 59/54 |
| Scanman 256 | 169 |
| Scanman 256 w. CatchWord OCR | 199 |
| Scanman 256 w. OmniPage OCR | 209 |
| Scanman color - 16.8 million colors | 439 |
| Trackman Portable / Trackman Combo | 89/75 |
| **MICROSOFT** | |
| Mouse 2.0 w. WIN 3.1 | 149 |
| Ball Point (portable) | 119 |
| Bus 2.0 (oem) / w. Bus Card | 53/75 |
| Bus 2.0 w. Expansion Card | 89 |
| Serial 2.0 (oem) | 49 |
| Serial 2.0 w. PS/2 port (special) | (75)79 |
| Serial 2.0 w. 9 to 25 pin adapter (special) | (65)79 |
| **MOUSE SYSTEMS** | |
| New Point (trackball for laptop & PC) | 54 |
| Little Mouse PC (2 button optical) serial | 29 |
| Omni (2 button) MS compatible | 25 |
| PC III Serial (optical) | 59 |
| PC Trackball II | 55 |
| Page Brush - color scanner (special) | (249)399 |
| Serial Bus Card (9 IRQs) | 24 |
| The New Mouse 400CPI (3 button) | 55 |

## 15. NETWORK

| | |
|---|---|
| MAILMAN 2.0 (10-user for Novell NetWare) | 199 |
| **3COM** | |
| 3C503 8 bit coax / TP ethernet | 179/199 |
| 3C503-16 Etherlink II 16 bit coax / TP | 169/179 |
| 3C507 16 bit Ethernet coax / TP | 279/299 |
| 3C509 Etherlink III coax / 5 pack | 135/575 |
| 3C509 Etherlink III TP / 5 pack | 139/585 |
| 3C509 Combo / 5 pack | 155/625 |
| 3C579 Etherlink III EISA coax / TP | 245/249 |
| 3C529 Etherlink III for MCA / TP | 245/249 |
| 3C621 Link Builder 10 BT (12 port) | 699 |
| 3C16270 Link Builder TP (12 port Hub) | 395 |
| TokenLink III 16/4 ISA/ MCA/ EISA | 465/495/645 |
| 3C551 Link Watch SNMP/NLM software | 259 |
| **ADDTRON (Novell compatible)** | |
| AE-200LC 8 or 16 bit BNC & TP | 69 |
| ET-200STS NE2000 coax compatible | 65 |
| ET-220TPS NE2000 TP compatible | 65 |
| AE-200STA NE2000 3 in 1 Combo | 75 |
| Starter Kit for Novell Lite 1.1 / for Win | 245/265 |
| Starter Kit for Lantastic AI DOS / WIN | 275/295 |
| Transceivers : ET10TB ( TP<-->AUI ) | 49 |
| Transceivers : ET10CB ( BNC<-->AUI ) | 49 |
| HUB : UTP8 ( 8TP + 1BNC ) | 235 |
| HUB : UTP16 ( 16TP + 1BNC + 1AUI ) | 495 |
| Pocket Adapter : BNC / TP | 135/139 |
| Boot PROM | 15 |
| Arcnet : | |
| - Arc120TP 8bit Combo | 59 |
| - Arc220TP 16bit Combo | 69 |
| - 8 port active Hub coax / TP | 135/145 |
| Token Ring : | |
| - 16/4 ISA / MCA | 379/399 |
| - Mau 1 / Mau 3 | 295/295 |
| **ALLIED TELESIS (CentreCOM)** | |
| AT-1500T TP / AT-1700T | 79 |
| AT-1500BT / AT-1700BT (TP+BNC) | 99 |
| **ARTISOFT (Lantastic)** | |
| AE-2 Ethernet starter Kit v5.0 | 449 |
| AE-2 Ethernet starter Kit v5.0 WIN | 509 |
| AE-2 Ethernet adapter | (oem 185)195 |
| AE-2 Ethernet adapter for MCA | 265 |
| AE-3 Ethernet starter Bundle / for Win | 495/569 |
| AE-3 Ethernet adapter / NR2000A | 225 |
| 2Mbps adapter | 139 |
| AE-2/T 16bit 10Base-T adapter | 199 |
| 64K RAM upgrade for AE-2, AE-3 adapter | 45 |
| AI software v5.0 DOS / 6 pk / 12 pk | 75/395/720 |
| AI software v5.0 WIN / 6 pk / 12 pk | 85/455/840 |
| AI Starter Kit NR-SI 2000C DOS / WIN | 339/359 |
| Articom - LAN modem sharing s/w | (225)279 |
| Central Station Connectivity Processor 5.0 | 399 |
| Ethernet s/w kit 5.0 w. cable DOS / WIN | 79/139 |
| Lantastic Z (2 stations) v5.0 | 89 |
| Lantastic for Netware (Network O/S)/ v5.0 | 99/275 |
| Lantastic for Mac s/w Kit | 339 |
| T - Runner 8 Port Hub / 12 Port Hub | 320/520 |
| Lantastic for TCP/IP single / 5-user | 185/760 |
| Lantastic Print Server Station Ware | 69 |
| Netware Print Server Station Ware | 69 |
| Network Eye (Remote Control Access) | 129 |
| NR 2000C (BNC only) / Starter Kit Win | 175/469 |
| NR 2000T (RJ 45 only) | 179 |
| NR-SI 2000C / 2000T (special) | (99) |
| Peer-Hub 10Base-T concentrator | 270 |
| Remote Boot ROM for AE-2, AE-3 adapter | 45 |
| Sounding Board adapter Kit | 69 |
| StationWare (Dial Up Connection) | 69 |
| **ASANTE** | |
| Network products | call |
| **CASTELLE** | |
| JetPress (Network Print Server) | |
| for HP II,IID,III,IIID, coax / TP | 429 |
| LANPress (Print Server) connects up to 4 printers | |
| - Ethernet Thick/Thin coax (1P 3S) | 475 |
| - Ethernet Thick/Thin coax (2P 2S) | 625 |
| - Ethernet 10BaseT (1P 3S) / (2S 2P) | 475/635 |
| **CC:MAIL** | |
| cc:Mail DOS platform v4.0 | 199 |
| cc:Mail WIN platform v2.0 | 335 |
| cc:Mail 10-user / 25-user pack | 239/579 |
| cc:Mail Gateway v3.21 | 859 |
| cc:Mail FAX v1.2 | 1350 |
| cc:Mail Remote | 199 |
| cc:Mail Router 4.0 | 875 |
| **COMPULAN** | |
| *Ethernet* | |
| - 8 bit E100 coax / ET500TP | 65 |
| - 16 bit E200 coax / ET600TP | 75 |
| - Boot Prom (for E100/ E200/ E500/ E600) | 25 |
| *Arcnet* | |
| - 4-port Arcnet Passive Hub | 19 |
| - 8-port Coax Stackable Active Hub | 149 |
| **D-LINK** | |
| DE-205 TP : 4 Port Hub + 16 bit card | 295 |
| Other Network Cards | call |
| **KINGSTON** | |
| Networks Cards | call |
| **FARALLON** | |
| PN381 PhoneNet w.Timbuktu for WIN | 259 |
| **GATEWAY COMMUNICATION** | |
| G/Ethernet 16 coax / 32 bit (special) | 69/299 |
| **IBM** | |
| PCMCIA for Token Ring 16/4 | 579 |
| PCMCIA 10B2 / 10BT | 295/295 |

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### INTEL

| | |
|---|---|
| EtherExpress Flash LAN Adapter (combo) | 145 |
| EtherExpress 16 coax / 5 pk | (115)/505 |
| EtherExpress 16 TP / 5 pk. | (117)/509 |
| EtherExpress 16 MCA / 16 MCA TP | 175/185 |
| EtherExpress 32 EISA | 439 |
| 12 port Hub EtherExpress ISA / EISA | 565/645 |
| LAN Protect 1.5 (virus protection) | 685 |
| LAN Sight 3.0 Netware Utility / Monitor | 299 |
| LANSpool s/w 386 NLM v3.5A | 425 |
| Netport II Thin & Thick / 10BT | 395/399 |
| Netport Express XL | 465 |
| NetSatisfaxtion V.2 (s/w for NOVELL) | 955 |
| RJ45 Harmonica | 55 |
| TokenExpress 16/4 ISA/ EISA/ MCA | 435/655/475 |

### NOVELL (Eagle)

| | |
|---|---|
| NE2000 plus coax ethernet / 5 pack | 135/595 |
| NE2000-TP plus TP ethernet / 5 pack | 129/575 |
| NE2000 Netware Lite starter kit / Win | 355/375 |
| NE2000 Plus Combo / 5 pk | 145/650 |
| NE3200 Eagle EISA Combo (special) | (545) |
| NTR 2000 Token Ring | 435 |
| EPROM for NE2000 | 35 |
| EXOS NE10T-Hub, 8 Port (8 TP + 1 coax) | 335 |
| Print Server NPE400 | 350 |
| Netware Lite 1.1 + DR DOS 6.0 | 65 |
| Netware Lite w. Win Utilities | 75 |
| Netware 3.12 | |
| - 5 / 10 / 25-user | 585/1295/1895 |
| - 50 / 100 / 250-user | 2525/3525/6525 |
| Netware 4.01 | |
| - 5 / 10 / 25-user | 825/1825/2625 |
| - 50 / 100 / 250-user | 3595/5495/9695 |

### SMC (Western Digital)

| | |
|---|---|
| 8003 Plus Elite 8 bit coax | 115 |
| 8013 Plus Elite 16 coax / 6 pk | 125/625 |
| 8013 Plus Elite 16 TP / 6 pk | 127/(599) |
| 8013 Elite 16 combo / 6 pk | 149/775 |
| 8013 Plus/A for MCA / TP | 195/199 |
| 8033 Elite 32 bit coax / TP | 595/599 |
| Elite Ultra 16 Ciax / TP | 110/112 |
| Netware Boot ROM for ethernet | 34 |
| 8 Port Concentrator (8TP+1AUI) | 349 |
| 12 Port Concentrator(12TP+2AUI+1BNC) | 595 |
| Token Ring 16/4 ISA / MCA | 379 |
| Token Elite Passive MAU 8 / MAU 16 | 445/599 |
| WD-8003 EP 8 bit Plus Elite | 49 |
| WD-8003WT 8 bit EtherPlus TP (w. cable) | 29 |
| WD-8003 W/A 8 bit EtherPlus 10T/A (w. cable) | 45 |

### SYNOPTICS

| | |
|---|---|
| Network Products | call |

### XIRCOM

| | |
|---|---|
| PCMCIA CE-10B2 BNC / CE-10BT | 285/289 |
| PCMCIA CE-10BC Combo | 325 |
| PE3-10B2 coax pocket adapter | 285 |
| PE3-10BT TP pocket adapter | 289 |
| PE3-10BC Combo pocket adapter | 325 |

### CABLES & ACCESSORIES

| | |
|---|---|
| Twisted pair cable, TP 4-pair, PVC, Level 3 | |
| - 1000' / 500' / 200' | 89/55/35 |
| 10 BASE-T cable, 1000' Level 3 plenum | 165 |
| RG58 cable, 500' / 1000' | 65/109 |
| Authen 4 port Hublet | 215 |
| Belden 8259, RG58, 1000' | 165 |

## 16. POWER SUPPLIES

### AMERICAN POWER CONVERSION (UPS)

| | |
|---|---|
| APC-400 Smart-UPS (286, 386 WS) | 289 |
| APC-600 Smart-UPS (386, 486 FS) | 359 |
| APC-900 Smart-UPS (386, 486, FS & WS) | 569 |
| APC-1250 Smart-UPS (multiple FS & WS) | 725 |
| APC-400 Back-UPS 286, ps/2, 386 | 179 |
| APC-600 Back-UPS 286, 386 FS | 285 |
| APC-900 Back-UPS | 395 |
| APC PowerChute Plus for Novell / OS/2 | 75 |
| Power Doctor (DOS) I/F Kit for Smart-UPS | 79 |

### GENERAL

| | |
|---|---|
| 250W for Baby AT/ Baby or Mid Tower | 45 |
| 250W for AT / for Full Tower | 47/49 |
| 300W for Full Tower | 69 |
| 550W for UPS | 279 |
| 1200W for UPS | 659 |

### PC POWER COOLING

| | |
|---|---|
| Standard 220 for desktop / full tower | 85 |
| Silencer 270 | |
| - for slim (baby or mid tower) | 149 |
| - for AT desktop / full tower | 165/165 |
| Turbo-Cool 300 | |
| - for slim (baby or mid tower) | 149 |
| - for desktop / full tower | 175/175 |
| Turbo-Cool 450 for desktop / full tower | 325 |

### TRIPP LITE

| | |
|---|---|
| BC 500 Lan (UPS, 350W) | 215 |
| BC 900 Lan (UPS, 650W) | 365 |
| Iso - Bar | call |
| Omni 450 Lan (UPS 325W + Line Regulation) | 275 |
| Omni 600 Lan (UPS 425W + Line Regulation) | 339 |
| Omni 900 Lan (UPS 650W + Line Regulation) | 499 |
| UPS Monitoring Board for NetWare | 59 |

## 17. PRINTERS

### BROTHER

| | |
|---|---|
| HJ-400 Desktop Ink Jet for PC or Mac | 295 |
| HL-6T Laser 6ppm ( 2 yr. warranty ) | 575 |

### CANON

| | |
|---|---|
| BJ-200 InkJet | 319 |
| BJ-300 desktop | 349 |

### CITIZEN

| | |
|---|---|
| GSX 145 (24 pin, 132 column) | 355 |
| - Color Option for GSX 145 / for GSX 130 | 65/45 |
| GSX 230 Fonts & quiet | 239 |
| GSX 240 Scalable Fonts & quiet (Rebate) | 285 |
| PN48 notebook, 1ppm, 2lb, battery, case | 299 |

### FUJITSU

| | |
|---|---|
| DL1200 24-wire dot matrix | 285 |

### MICROTEK

| | |
|---|---|
| TrueLaser MTP-306 6ppm, 2MB, 35 fonts | 1195 |

### HP (HEWLETT PACKARD LaserJet w. toner)

| | |
|---|---|
| Desk Jet 500 / 500C / 550C | 295/395/585 |
| Desk Jet 1200C / Postcript | 1375/1975 |
| Jet Direct 10BT | 429 |
| Laser Jet IIIP | 839 |
| Laser Jet 4 / 4M / 4L / 4ML | 1349/1865/669/1045 |
| Laser Jet 4Si / 4SiMX | 2995/4295 |
| Paint Jet / Paint Jet XL300 | 695/2295 |

### LASER MASTER

| | |
|---|---|
| Utility XL1200 / XLT / XLO | 4795/6495/7995 |
| Win Printer 800 (Postscript) | 1095 |
| Win Printer XL600 11x17, 600x660PPI | 2395 |
| WinJet 800 Postscript for HP II,IID,III,IIID | 450 |
| WinJet 1200 Postscript for HP 4 (special) | (750) |

### PACIFIC DATA PRODUCTS

| | |
|---|---|
| ProTracer Inkjet, A to C size output, 360dpi, i960RISC processor, 512K, 45dBA | 1175 |
| - Postscript emulation card | 375 |
| - HP-GL emulation Card | 315 |
| - Sheet Feeder I / II | 135/115 |
| - Ink Cartridges | 19.50 |
| Pro Tracer HP GL Bundle w. 5MB | 1745 |

### PANASONIC

| | |
|---|---|
| 1124i / 1624 | 259/349 |
| - Auto Sheet Feeder for 1124 KX-P36 | 120 |
| 2023 24pin, quiet printer | 199 |
| 2123 24 pin, 43.5dBA, color capability | 239 |
| 2124 24 pin, 43.5dBA, color capability | 319 |
| 2624 24 pin, quiet printer, 46.5 dBA | 375 |
| 2180 9 pin, 45 dBA, color capability | 159 |
| 1150 9 pin, 55 dBA, | 139 |
| Color upgrade Kit KX-PCK11 | 49 |
| Single bin cut sheet feeder KX-PT10 | 95 |
| 32K Buffer dot matrix printers KX-P43 | 65 |
| Serial interface card PS-13 | 75 |
| 4410 Laser, 512K, 5ppm | 549 |
| - Corona KX-PCR3 | 45 |
| - Developer KX-PDP4 | 105 |
| - Drum KX-PDM4 | 89 |
| - Extra cassette KX-PKC2 | 45 |
| - Fuser unit KX-PFS5 | 105 |
| - Optional second cassette KX-P495 | 135 |
| - Toner KX-P453 | 35 |
| - Fonts Card KX-P47x ( for Lasers ) | 95 |
| 4430 Laser, 1 MB, 5ppm | 675 |
| - Accessories same as 4410 | |
| 4420 Accessories | |
| - Developer KX-PDP2 | 95 |
| - Drum KX-PDM2 | 99 |
| - Envelope Tray KX-P431 | 59 |
| - Legal Tray KX-P425 | 45 |
| - Ozone Filter KX-PFT2 | 26 |
| - Toner KX-P451 | 39 |
| 4450i Laser 11ppm | 975 |
| 4450 Accessories same as 4450i | |
| - Developer KX-PDP1 | 95 |
| - Drum KX-PDM1 | 145 |
| - Envelope Tray KX-P430 | 59 |
| - Legal Tray KX-P420 | 45 |
| - Ozone Filter KX-PFT1 | 29 |
| - Toner KX-P450 | 35 |
| 4455 Postscript, 11ppm | 1695 |
| - others same as 4450i | |

### QMS (Adobe Postscript)

| | |
|---|---|
| QMS-PS 410 4ppm, 2MB, 45 Fonts | 1235 |
| - Envelope / Legal / Letter Tray | 69/69/69 |
| - Lower Cassette w. Letter Tray | 149 |
| - Toner | 95 |

### OKIDATA

| | |
|---|---|
| Printers | call |

### SEIKO

| | |
|---|---|
| Smart Label Printer Pro | 245 |
| Box of Label (2 rolls per box) | 10.95 |

### TEXAS INSTRUMENTS

| | |
|---|---|
| Micro Writer PS17 / PS35 5ppm | 935/1195 |
| XLPS 17 16ppm | 1895 |
| - Apple Talk Kit | 99 |

***Laser Printer Accessories:***

### COMPUTER PERIPHERAL

| | |
|---|---|
| Jet Page for HP II (special) | (125) |

### HP

| | |
|---|---|
| Optinal 500 sheet Legal Letter A4 (Jet 4) | 279 |
| Envelope Power Feeder 75 sheet (Jet 4) | 279 |
| Legal, Letter or A4 250 sheet Tray (Jet 4) | 99 |
| Legal, Letter or A4 500 sheet Tray (Jet 4) | 109 |
| Lower Cassette w. letter tray for IIP, IIIP | 149 |
| Toner for Jet II, III | 79 |
| Toner for Jet IIP, IIP+, IIIP | 66 |
| Toner for HP4 / 4L | 109/69 |
| Postcript for Jet 4 | 359 |

### IQ ENGINEERING

| | |
|---|---|
| True Type Master Library | 29 |
| Super Cartridge 2 & 2LC (special) | 199 |
| Super Cart. 3 Pro+ for HP III, IIID, IIIP, IIISI | 199 |
| Desk Jet 500 / Desk Jet Plus Professional | 99 |

### PACIFIC DATA

| | |
|---|---|
| 25 in One! (for Deskjet 500) | 99 |
| 25 in One! III | |
| - for HP II, IID, IIP, IIP+, III, Microtek | 245 |
| Complete Font Library for HP III, IIID, IIIP | 255 |
| Font Bank for all HP Laserjet (New) | |
| stores soft fonts, 0.75MB / 1.5MB | 205/269 |
| Headlines Cartridge for HP II, IID, IIP | 185 |
| Paicfic Connect XI | |
| - For HP II, IID, III, IIID : | |
| -- 5 port 256K / 1MB (4S, 1P) | 319/389 |
| -- 10 port 256K / 1MB (10S) | 449/519 |
| - For HP 4, IIISI, Paint Jet XL300 : | |
| -- 7 port 1MB / 4MB (6S, 1P) | 449/649 |
| -- 10 port 1MB / 4MB (10S) | 519/719 |
| Pacific Page & 2MB ( Postscript for HP II ) | 389 |
| Pacific Page II / XL w. 4MB ( Postcript for HP II ) | 719 |
| Pacific Page 4 ( Postcript for HP 4 ) | 279 |
| Pacific Page P.E.( HP IID,IIP,IIP+,III,IIID,IIIP ) | 279 |
| Pacific Page P.E. & 2MB | 405 |
| Pacific Talk | 179 |
| Pacific Page PE XL ( HP IIP, IIP+, III, IIID, IIIP ) | |
| Pacific DirectNet ( for Novell ) | 369 |
| Pacific DirectNet ( for Novell & UNIX ) | 499 |
| Postscript w. 4MB & accelerator board | 719 |
| Plotter in a Cartridge ( HP II ) | 225 |
| Plotter in a Cartridge P.E. | |
| - for HP IID, IIP, IIP+, III, IIID, IIIP | 225 |

| | |
|---|---|
| **PELICAN** All type ribbons | visit us |

## 18. SCANNER

### HP

| | |
|---|---|
| ScanJet IIP w. Kit | 749 |
| ScanJet IIC Color w. Kit | 1295 |

### TAMARACK

| | |
|---|---|
| ArtiScan Flatbed 24bit color 256 gray levels | |
| - w. Publisher L.E. 600/800/1200 dpi | 845/1045/1695 |
| - w. Pub.L.E. &OCR 600/800/1200 dpi | 895/1095/1745 |
| - w. Photostyler 600/800/1200 dpi. | 995/1195/1845 |
| - w. PhotoShop 2.5 600/800/1200 | 1045/1245/1895 |
| Slide Scan Kit (transparency, slide, X-ray) | |
| - 600/ 800/ 1200 dpi | 525/525/595 |

### MICROTEK

| | |
|---|---|
| Scan Maker II w. PhotoShop LE | 899 |
| Scan Maker IIXE w. PhotoShop | 1150 |

**Hand scanners** ........ see **Logitech** in # 14

### E-TECH

| | |
|---|---|
| 4256G 256 gray scale (w.OCR) | 99(115) |
| 4200C 256/4096 color (w.OCR) | 269(289) |

## 19. TAPE BACKUP

### ARCHIVE

| | |
|---|---|
| Viper / Python | call |

### COLORADO

| | |
|---|---|
| Backup for Windows | 45 |
| DJ-10 120MB QIC-40 w. cable / w. Win. | 129/159 |
| DJ-20 250MB QIC-80 w. cable / w. Win. | 169/199 |
| - AB-11 Ext tape port | 39 |
| - Cable (2 Floppies & tape back up) | 7 |
| - FC-10 Controller | 85 |
| - KE-09 Ext Kit w/o controller | 75 |
| - TC-15 controller w. data compression | 179 |
| - Unix/ Xenix driver for DJ-10, 20 | 99 |
| PowerTape PT-25 2GB 300KB/s Int | 965 |
| PowerTape PTE-25 Ext | 1095 |
| PowerTape PT-50 4GB 300KB/s Int | 1525 |
| PowerTape PTE-50 Ext | 1655 |
| Trakker 250MB Ext (printer port) | 339 |
| Trakker 120MB Ext (printer port) | 299 |

### CONNER

| | |
|---|---|
| Tape Stor 250MB w. 3M Cartridge | 145 |

### SUMMIT

| | |
|---|---|
| SE250 250MB | |
| w. Backup software & free Cartridge offer | 165 |

## 20. VGA CARDS

| | |
|---|---|
| INTEL Smart Video Recorder | 535 |
| Paradise Window Accel 31X 1MB | 159 |
| Standard 24 VLB 1MB | 105 |
| Video Plus (video image grabber) | 259 |
| WinVision (video capture) | 165 |

**(All cards 1024x768 except as stated)**

| | |
|---|---|
| CGA / MGP card (Monographic w. Printer) | 29 |
| ET4000 Tseng Lab 1MB ISA / VLB | 89/119 |
| Oak087 Super VGA 512K | 52 |
| Oak077 Super VGA 1MB | 65 |

### AMI

| | |
|---|---|
| FastView EISA VGA Graphics 1MB | 175 |
| FastView P9000 VLB 2MB | 395 |

### ATI

| | |
|---|---|
| VGA Stereo F/X 512K ( PC Sound & VGA ) w. speakers | 159 |
| Wonder XL 24 1MB, Hi-color, w. mouse | 145 |
| Graphics Ultra Plus DRAM VLB | 239 |
| Graphics Ultra Plus 2 DRAM w. mouse. | 269 |
| Graphics Ultra Pro 2MB | 345 |
| Graphics Ultra Pro 2MB VRAM VLB | 395 |
| Graphics Ultra Pro 2MB EISA | 425 |

### DIAMOND

| | |
|---|---|
| Stealth 1MB VRAM w. Sierra Hi-color | 189 |
| Stealth 24 1MB DRAM 16 million color | 165 |
| Stealth 24 1MB DRAM VLB | 169 |
| Stealth Pro VRAM 1MB / VLB | 255/265 |
| Stealth Pro VRAM 2MB / VLB | 349/359 |
| Viper VLB P9000 VRAM 2MB | 395 |

### MEDIA VISION

| | |
|---|---|
| ProGraphic 1280 (new) | 735 |

### METHEUS

| | |
|---|---|
| Premier 928 w. 4MB VRAM ISA | 765 |
| Premier 928VL4 w. 2MB VRAM VLB | 599 |
| - 1MB Memory upgrade VRAM | 129 |

### MYLEX

| | |
|---|---|
| GLE911 1MB, 1280x1024, EISA | 399 |
| GXE020B 4MB DRAM 1280x1024, 2MB VRAM, TMS34020, Tiga/EISA | 1039 |

### NUMBER NINE (TI34020)

| | |
|---|---|
| #9 GXe 1280 x 1024, 90Hz, S3-928 chip | |
| - Level 10 VRAM ISA 1MB | 259 |
| - Level 11 VRAM 2MB ISA / VLB | 355/359 |
| - Level 12 VRAM 3MB ISA / VLB | 435/439 |
| GXI TC-Level 29, 24 bit 1280x1024-265K color at 72Hz,4MB VRAM, 1MB DRAM | 1445 |

### ORCHID

| | |
|---|---|
| Fahrenheit VA/ VLB, w.voice annotation,24 bit | 175 |
| Fahrenheit 1280+ VLB 1MB 24bit | 159 |
| Fahrenheit 1280+ DRAM 1MB | 155 |
| Ce lcius VLB 1MB | 215 |
| ProDesigner IIs 1MB, w. Hi-color | 145 |

# III SOFTWARE

## 1. CD SOFTWARE

### GROUP A

*Each* ........ ***$19.50***

Adventure in Heaven
American Business PhoneBook 92
Audubon's Birds
Audubon's Mammal
CD Story Time
Cook Heaven
Desert Storm MPC
Dr Games
Dr Music ( research )
Dr Shareware
Dr Windows
Gameware Collection
Giga Games ( 3000 files )
Great Cities I / II
House of Games
Family Education Collection
King Quest V
Jets and Props (Media clips)
Jones in the Fast Lane
Learning Heaven
Mixed-up Mother Goose
Multimedia Computer Tutor
Multimedia Music Training
National Parks
Pheonix Shareware
Sherlock Holmes I
Sleeping Beauty MPC
Space Quest IV - Roger Wilgo ( oem )
Sports Best
Stellar 7
So Much Shareware II
Sound Library
Straight from Heaven
Super Games WIN
Tempra Access Photo CD (DOS, color)
The Animals DOS
The Adventure of Willy Beamish
Time Table of History - Science
Up All Night ( shareware )
Who Kill Sam Rupert
Windows Master

### GROUP B

*Each* ........ ***$24.50***

Adventure of Pinocchio
Arthur's Teacher Trouble (oem)
Atlas Pack ( World + US ) - DOS
Battle Chess DOS
Chess Master 3000 MPC
Crossword Cracker
Corel Artshow 3 (Book + CD) MPC
Dangerous Hot Stuff I (collection of graphics)
Dinosaur Adventure
Discis : Kids Can Read ( DOS, WIN, MAC )
- Cinderella
- Heather Hit her First Home Run
- Long Hot Day at the Ranch
- Moving Gives Me Stomach Ache
- Mud Paddle
- Paper Bag Princess
- Tale of Benjamin Bunny
- Tale of Peter Rabit
- The Scary Poems for Rotten Kids
- Thomas Swimsuit

Family Choice
Language/OS
Laser Printer Companion
LOOM
Media Music Shop
Monkey Island
PC Media ( Dignostic, Reference )
PC SIG Library vol.12
Playing w. Language ( oem )
Publish It 2.0 - DOS
QuickToons - MAC / PC
Reference Library
Resource Multimedia
Sci-Fi Fantastic
Secret Weapons of the Luftwaffe
Space Adventure
Space Shuttle
The Animals MPC
The Best of 20th Century
The Family Doctor
Wing Commander w. Ultima 6

### GROUP C

*Each* ........ ***$29.50***

Animation Festival
Atlas Pack (world + US) - MPC
Battle Chess MPC
Bible Library (oem)
Beyond the Walls of Stars
Business Background MPC + MAC
CD Fun House (350 games) - DOS, WIN, MAC

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Tel.: (408) 241-0185 FAX: (408) 241-0390

CD Game Pack II (10 games)
Composer Quest MPC
Dangerous Hot Stuff II (collection of graphics)
Dinosaur - The Multimedia Encyclopedia
ECO-Quest : The Search for Cetus
Electronic Library of Art (Western Arts)
Encyclopedia of ClipArt ( Power Pack )
Fantazia Fonts & Sound
Hound of Baskervilles
Guiness Disc of Records 93 MPC
Karaoke ( w/o microphone )
Laura Bow 2 - The Dagger of Amonra
Mammals (National Geographic)
Mario is Missing + World Atlas
Master Piece Library
Mavis BeaconTeaches Typing MPC
Mayo Clinic Family Health Book
Microprose Gamepack
Monster Media 93
Night Owl 9 ( Shareware )
Publisher's Paradise
Talking Class Tales     Talking Jungle Safari
US Atlas w. Auto Map     US History
Where in the World is Carmen Sandiego

### GROUP D

***Each .......................... $34.50***

A Line in the Sand
Adventures (1000 tours)
All American Sports
Dictionary of Living World MPC
Electronic Home Library
Encyclopedia ( Grolier's DOS 5.01 )
Essential Home & Business Collection
Flesh Art (clip art)
Fractal Ecstasy (images)
Greatest Books Collection / for Win
Languages of the World for Win
Macromedia ACTION! WIN
Monster Media 93
Nautilus Mini Subscription
Plant Doctor     Pixel Garden
Playing w. Lang. - Jap/Ger/Fren/Eng/Span
Prescription Drugs
Scrabble Crossword Game (deluxe)
Software Jukebox
Stories of Murder, Mystery, Magic & Terror
Timetable of Arts & Entertainment
Timetable of Business & Politics

### PECIAL GROUP

***Each .......................... $14.50***

Audio I (shareware)
Beauty and The Beast MPC
Business Master ( Shareware )
CIA Fact Book & Shareware
Chestnut:
- Bible & Religion     - Clip Art Goliath
- Colossal CookBook
- Computer Reference Library
- Death Star Arcade Battles
- Dictionary & Language
- Encyclopedia of Sound
- Shareware Overload
- Technotools ( Programming )
- The Complete Book Shop     - World Traveler

Education Master ( Shareware )
Gardening
Graphics I (shareware)
Kodak Photo CD Access v1.0 for Win (oem)
Learning Adventure
MPC Wizard (test & tune-up for Win)
Peter and the Wolf MPC
Resource Audio     Resource Graphic
Rom Man Technologies : (w 3-D hologram)
Brain Drain     - Futura
Let's Play     - Mirror-Mirror
Oldies but Goodies     - Variety Store
Roto + Time Bandit + Airball
Selectware     Super Font

### UNDLE

***5 PACK # 1 .......................... 135***

Compton's Multimedia Encyclopedia for WIN
Guinness disk of Record MPC
CD Game Pack II or any Game in group A & B
Time Table of History - Science
Wing Commander w. Ultima 6

***5 PACK # 2 ( DOS ) .................... 95***

Atlas Pack ( US & World )
Reference Library     The Animals
Secret Weapons of the Luftwaffe
Software Toolworks Encyclopedia 5.0

***5 PACK # 3 ( Windows ) ................ 99***

CD Deluxe Pack MPC ...$45
( Chess Master 3000 + Mavis Teaches Typing + US Atlas 3.0 + World Atlas 3.2 )
Grolier's New Multimedia Encyclopedia
Wizard MPC

***5 PACK # 4 .......................... 95***

Microsoft Bookshelf 93'     Animals
Sleeping Beauty     Space Quest II
Sound Library     Selectware

***MULTIMEDIA BUNDLE # 5 (w. 6 titles) ..... 99***

Microsoft BookShelf for Windows 91'-92'
Microsoft Works for Windows
Sherlock Holmes I
Software Library ...$49
( Authorware Star + Macromind ACTION! + Mathematical Tempra )

### OTHERS

| | |
|---|---|
| 7th Guest DOS (special) | (45)55 |
| Amazing Universe PC & MAC | 49 |
| Anabel's Dream - Egypt | 59 |
| Arthur's Teacher Trouble w. box WIN | 45 |
| Battle Chess Multimedia - Enhanced | 49 |
| California Travel MPC | 39 |
| CD Source Book of American History | 75 |
| Compton's Family Encyclopedia | 39 |
| Compton's Interactive Encyc. WIN | 245 |
| - upgrade | 99 |
| Compton's Multimedia Encyc. WIN oem | 65 |
| Countries of the World oem / reg. | 79/269 |
| Day of the Tentacle - Maniac Mansion | 49 |
| Desktop Publisher's Dream Disk | 45 |
| Dinosaur Adventure DOS | 49 |
| Distant Sun for Win / w. Space Vision | 59/79 |
| Famous Faces / Famous Places MPC | 49/49 |
| Fitness Partner - MPC | 45 |
| Global Explorer (DeLORME) MPC | 99 |
| Goldilocks and the 3 Bears (Eng/Fren/Span) | 39 |
| Grammy Awards | 39 |
| Graphics Works | 45 |
| Great Literature (1896 books) DOS & MAC | 49 |
| Great Wonders of the World DOS | 39 |
| Heart the Engine of Life (human body) | 69 |
| History of the World oem / reg. | 59/325 |
| Hong Kong at its Best | 25 |
| Impact! for Win (by 3G Graphics) | 69 |
| Indiana Jones - The Fate of Atlantis | 45 |
| JAZZ of Multimedia History MPC | 59 |
| Just Grandma and Me WIN | 39 |
| King's Quest VI / Upgrade | 49/35 |
| Kodak Photo CD Access DOS / WIN | 35 |
| Learn to Speak Spanish / Eng. / French | 65 |
| MacMillan Dictionary for Children (K-12 grade) | 45 |
| Microsoft CINEMANIA MPC | 55 |
| Microsoft Dinosaur | 57 |
| Microsoft ENCARTA MPC | 245 |
| Microsoft Golf | 48 |
| Microsoft Multimedia Beethoven 9th Symphony | 55 |
| Microsoft Multimedia Bookshelf 93 (oem 49)/ | 125 |
| Microsoft Multimedia Mozart | 57 |
| Microsoft Multimedia Stravinsky | 57 |
| Microsoft Musical Instruments MPC | 55 |
| Microsoft Works MPC | 45 |
| Monarch Notes (over 2000 study guides) | 49 |
| Monster Disk II (2 shareware disk) | 45 |
| Multimedia Animals Encyclopedia MPC | 39 |
| Multimedia Encyc. ( Grolier's WIN 1.5 ) | 55/225 |
| Nautilus BackPac for Win I / II | 49/49 |
| New York at its Best | 25 |
| Oxford English Reference Library OS/2 & DOS | 99 |
| Picture Atlas of the World | 99 |
| Phone Disk USA (business) | 59 |
| Precision Mapping | 85 |
| Pro Phone Bus / 7 disk 93 / Mid 93 | 45/95/115 |
| Putt Putt : Joins the Parade | 49 |
| Putt Putt : Going to the Moon | 45 |
| Q & A v 4.0 | 45 |
| Return to the Moon | 49 |
| Shareware Explorer - 4 CD set | 55 |
| Shareware Extravaganza - 4 CD set | 45 |
| Sherlock Holmes II / III | 49/55 |
| Space Quest IV - Roger Wilgo w. box | 45 |
| Street Atlas (DeLORME) | 99 |
| Talking Schoolhouse | 59 |
| Think and Talk Spanish (Fren/ Italian/ Ger) | 115 |
| Voyage to the Planets 1 / 2 / 3 | 49 |
| Voyage to the Stars 1/ 2 | 49 |
| Wing Commander II Deluxe | 59 |
| World Vista MPC | 45 |

## 2. PC SOFTWARE

*( price ) .......................... special

### ADOBE

| | |
|---|---|
| Illustrator 4.0 WIN w. Streamline | *(359)425 |
| PhotoShop 2.5 WIN | 515 |
| Streamline for WIN | 125 |
| Plus Pack for Mac | 99 |
| Type Align | 59 |
| Type Cartridge 1/ Type Cartridge 2 | 79 |
| Type Manager for WIN 2.5 | 67 |
| Type Set 1/2/3 for WIN | 69/65/125 |
| Type Set: Overheads & Slides | 75 |
| Type Set: Spreadsheets & Graphs | 75 |

### AUTODESK

| | |
|---|---|
| AutoDesk 3D Concepts | 145 |
| AutoSketch for WIN | 175 |
| Generic CADD v6.1 | 285 |
| Generic 3D | 225 |
| Graphic Impact / Instant Artist | 65/39 |
| Home Series (home / landscape / kitchen+bath) | 39 |
| Multimedia Explorer - CD version | 115 |

### BORLAND

| | |
|---|---|
| Brief 3.1 for DOS & OS/2 | 95 |
| C++ for OS/2 | *(149)349 |
| C++ Professional 3.1 for WIN | 319 |
| C++ 3.1 for WIN & Application Frameworks | 485 |
| dBase IV v2.0 for PC / upgrade | 485/99 |
| ObjectVision 2.1 / Pro 2.1 | 102/ *(245) |
| Paradox 4.0 DOS | 499 |
| Paradox for WIN / 4.5 for Win | *(125)/145 |
| Quattro Pro 5.0 for WIN / DOS (new) | 49 |
| Quattro Pro Workgroups Edition | 189 |
| - upgrade | 99 |
| SuperPack ( Quattro Pro & Paradox ) WIN | 189 |
| Screenery (Windows wallpaper, screen saver) | 25 |
| Turbo C++ 3.0 for DOS / 3.1 for WIN | 75/105 |
| Turbo C++ Visual Edition for WIN | *(79) |
| Turbo Pascal 7.0 / 1.5 for WIN | 115/109 |

### CENTRAL POINT

| | |
|---|---|
| Anti-Virus 1.2 WINDOS / 2.0 DOS | 39/*(59) |
| Backup 8.0 DOS | *(59)89 |
| PC Tools 8.0 / 8.0A / 1.0 for WIN | 105/115/*(99) |

### INTUIT

| | |
|---|---|
| Quicken for DOS 6.0 / WIN 3.0 / MAC 4.0 | 45 |
| QuickBook / 2.0 for WIN | 87/95 |
| QuickPay (payroll) / for WIN | 39 |
| QuickBook & QuickPay | 110 |

### LOTUS

| | |
|---|---|
| Improv - 12 data dimentions | *(99)295 |
| 1-2-3 4.0 for WIN | *(299)325 |
| - upgrade | 99 |
| 1-2-3 Rel 3.1+ for DOS / Rel 3.4 single | 385 |
| 1-2-3 for DOS upgrade | 99 |
| Ami Pro for WIN 3.01 | 239 |
| - upgrade / competitive upgrade | 65/99 |
| Freelance Graphic | 299 |
| - upgrade for DOS/WIN | 99 |
| Lotus Organizer 1.1 | *(99) |
| Smart Suite 2.0 (1-2-3, Ami-pro, Approach, Freelance, Organizer) | 450 |

### MICROGRAFX

| | |
|---|---|
| ABC Flowcharter | 325 |
| Designer 4.0 | *(425)445 |
| - competitive upgrade | 195 |
| Graphics Works for WIN | *(115)175 |
| Picture Publisher 4.0 for WIN (new) | 399 |
| - competitive upgrade | 195 |
| Windows Draw 3.0 | 55 |

### MICROSOFT

| | |
|---|---|
| DOS 3.3 / 4.01 / 6.0 | 29/19/49 |
| - upgrade to 6.0 | *(49)79 |
| ACCESS | *(89)325 |
| - upgrade to 1.1 / competitive upgrade | 15/149 |
| Entertainment Pack for WIN 1/ 2/ 3/ 4 | 28 |
| Excel 4.0 for WIN | 285 |
| - upgrade | *(109)125 |
| Flight Simulator v4.0 / v5.0 | 39/43 |
| FORTRAN 5.1 Compiler | 99 |
| Fox Pro 2.5 Distribution Kit DOS / WIN | 319 |
| Fox Pro 2.5 Single DOS / WIN | 315 |
| Fox Pro upgrade to 2.5 DOS / WIN | *(99) |
| Macro Assembler v6.1 ( MASM ) | 129 |
| Money for WIN 2.0 | *(15)49 |
| Multimedia Viewer - CD | 315 |
| Office for WIN 3.0 | 469 |
| Office Professional for WIN | 585 |
| PC Mail Server for DOS & WIN (10-user) | 435 |
| Power Point for WIN / Upgrade | 299/125 |
| Profit for WIN | 129 |
| Project 3.0 for WIN / Upgrade | 419/145 |
| Publisher 2.0 for WIN (new) | *(95) |
| Scenes Screen Saver | 28 |
| Sound System for WIN + Windows 3.1 | 185 |
| Sound System for WIN + 2 Games | 199 |
| Test 2.0 for WIN (new) / Upgrade | 315/99 |
| True Type Font Pack 1/ Pack 2 (HP printers) | 49 |
| Video for WIN (CD & floppy) | 129 |
| Visual Basic 3.0 for WIN -standard | 129 |
| Visual Basic Professional 3.0 for WIN | *(249)315 |
| - upgrade fr standard ver to prof. ver 3.0 | 145 |
| - upgrade / competitive upgrade | 99/195 |
| Visual C++ (standard) | 129 |
| Visual C++ Professional | 309 |
| - upgrade / competitve upgrade | 135/189 |
| Visual C++ for Windows NT | call |
| Windows 3.1 / upgrade | 65/49 |
| Windows 3.1 Device Driver Development Kit | 315 |
| Windows NT 3.1 / upgrade special | 319/265 |
| Windows Printing System | 135 |
| Windows for Workgroups Add on / 5-user | 69/269 |
| Windows for Workgroups Add on Starter Kit | 275 |
| - Workgroups Add on 1 User Kit | 139 |
| Word 6.0 DOS / Upgrade | 315/99 |
| Word 2.0 for Windows / Upgrade | 285/125 |
| Works 3.0 | 99 |
| Works for WIN 2.0 | 125 |
| - competitive upgrade | 79 |

### QUARTERDECK

| | |
|---|---|
| DesqView 286 | 59 |
| DesqView 386 v2.6 (new) | 95 |
| DesqView / X v1.1 | 165 |
| DesqView / X Network Manager (TCP/IP) | 129 |
| Qemm 386 v7.0 / Upgrade | 59/43 |

### SANTA CRUZ OPERATION - SCO ... call

### SYMANTEC

| | |
|---|---|
| Norton | |
| - Anti-Virus 2.1 | 79 |
| - Backup v1.2 / v2.2 | 49/99 |
| - Desktop 2.2 for WIN | 105 |
| - Commander 4.0 | 69 |
| - Q & A Write (word processing) | 49 |
| - Speed Drive (speeds WIN, DOS & CD) | 69 |
| - Utilities 7.0 / Competitive upgrade | 109/99 |
| ACT ! 2.1 / 2 user /1.1 for WIN | 255/379/255 |
| C++ Professional / Upgrade | 319/189 |
| On Target for WIN | 89 |
| PC Anywhere 4.5 Remote & Host / Win. | 115/119 |
| PC Anywhere Lan Complete | 385 |
| Q & A 4.0 / 4.0 for Win. | 239/*(165) |

### WORDPERFECT

| | |
|---|---|
| PlanPerfect | *(195)255 |
| WordPerfect 5.2 for WIN | 259 |
| - upgrade Kit from 5.1 to 5.2 for WIN | 39 |
| - upgrade to WIN 5.2 from DOS | 99 |
| - competitive trade up 5.2 for WIN | 105 |
| WordPerfect 5.2 for OS/2 / Upgrade | 279/105 |
| WordPerfect 6.0 DOS oem / reg. | 225/269 |
| - upgrade to 6.0 | 99 |
| WP Office 4.0 WIN - server / client 5-pk | 175/289 |

### OTHERS

| | |
|---|---|
| 3-D Charts to go | *(35) |
| After Dark screen saver for WIN | 29 |
| - More After Dark | 27 |
| All in one! ( HP DashBoard + LapLink + Organizer + portable carrying case ) | 155 |
| ALDUS | |
| - Freehand 3.1 for WIN | 379 |
| - PageMaker 5.0 for WIN | *(499)525 |
| - Persuasion 2.1 for WIN | 325 |
| - Photostyler 1.1 for WIN | 495 |
| Approach 2.0 for WIN | *(99)239 |
| AST ( business / medical s/w ) | call |
| Asymetrix Multimedia Make Your Point | 45 |
| Automap (road atlas) / for WIN | 49/59 |
| Bitstream True Type Font Pack | *(19)35 |
| Body Works | 39 |
| Boot Con (solve compatibility problems) | 49 |
| By Design for WIN | 59 |
| CALERA Wordscan 1.1 / Plus | 179/425 |
| Canvas for Windows | 265 |
| Carbon Copy 6.1 Guest & Host | 112 |
| Carbon Copy 2.0 for WIN | 115 |
| ClarisWorks for Windows | 99 |
| Clipper 5.2 | 479 |
| - upgrade / competitive upgrade | 115/145 |
| Check-It plus 3.0 | 85 |
| Check-It Pro vol.1 / vol.1 & 2 | 59/85 |
| Corel Draw 3.0 | *(129) |
| Corel Draw 4.0 / CD version | 385/365 |
| - upgrade / CD version | 215/199 |
| CommomWorks for Win | 125 |
| Dash Board for WIN (HP) | 45 |
| Direct Access 5.1 / for WIN | 63/45 |
| Display Faces / Drive Rocket | 77/29 |
| EasyDOS (menu for WIN) | 25 |
| Eclipse Fax 1.1 for WIN / w. OCR | 69/85 |
| Energizer Bunny screen saver | 15 |
| Fastback Plus 6.0 / 3.1 for WIN | 99/107 |
| Faxit DOS & WIN | 69 |
| Fax Master for WIN | *(79) |
| File Maker Pro 2.1 for WIN | *(125)259 |
| Font Minder for WIN | 55 |
| Fractal Design Painter 2.0 WIN | 255 |
| Frame Maker 4.0 / Upgrade | 485/159 |
| - competitive upgrade | 299 |
| FTP : PC/TCP for DOS / WIN | 345 |
| Geoworks Pro | 119 |
| GDI : Flash Form / Wind Form | 55/65 |
| Grammatik V for DOS / WIN | 57/59 |
| Hardvard Graphics 2.0 WIN / Upgrade | *(265)/89 |
| Hardvard Graphics 3.06 DOS | 375 |
| Hijaak 2.1 / 2.0 for WIN | 99/89 |
| Hollywood for WIN | *(99) |
| IBM DOS 5.0 | 39 |
| IBM PC DOS 6.1 | 115 |
| IBM OS/2 2.1 / CD version | 149/135 |
| - upgrade / CD version | 99/85 |
| IIT XtraDrive 3.0 (data compression) | 65 |
| Intermission screen saver for Win | 29 |
| Johnny Castaway screen antics | 19 |
| LapLink V / Upgrade | 105/55 |
| LapLink V Netware | 145 |
| Mac-In-DOS for WIN | 99 |
| Mac Print / More Font | 65/77 |
| Omni Page Professional WIN 2.1 | 599 |
| Pacioli 2000 | *(15) |
| Peach Tree Accounting 2.0 for WIN | 115 |
| Power Japanese for Win | 225 |
| Power Search (file manager) | 39 |
| PrintShop Deluxe 1.2 for Win / Business | 49/27 |
| Procomm Plus 2.1 / 1.02 for WIN | 69/95 |
| Professional Draw | *(199)269 |
| QA Plus 4.7 / for WIN | 89 |
| Quark X Press 3.1 for WIN | 569 |
| Right Writer 5.0 / for WIN | 35 |
| SpinRite 3.1 | 79 |
| Stacker 3.1 / Upgrade | 95/55 |
| Stackker for OS/2 | 125 |
| Star Trek screen saver | 35 |
| Superstor 2X / Pro 2X | 59/79 |
| Time Slip v.5.0 | 189 |
| This is My Computer | 8.50 |
| Turbo CAD v3.0 w. free 500 drawing symbols. | 85 |
| T-Value 3.0 (interest, loan) | 59 |
| Uninstaller (Microhelp) | 45 |
| Unixware Personal Edition (CD ver) | 175 |
| Ventura Publisher 4.1 | 499 |
| - Ventura Publisher 3.0 + upgrade 4.0 | 299 |
| - Ventura Publisher 4.1 Education special | 199 |
| Vista Pro v 3.0 | 69 |
| VISIO for WIN (shapeware) | 199 |
| Wave for WIN | 75 |
| Winfax Pro 3.0 | 79 |
| WinSense (windows optimizer) | 49 |
| Winsleuth Gold Plus | 59 |
| XTree Gold 2.5 / 3.0 | 89 |
| XTree for WIN 1.5 | 65 |

**Educational Software & Games (on sale)** ■

*continued from page 242*

## **Calendar Of Events** continued

**LANtastic To Novell Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.

**November 7 WordPerfect On DOS For Windows Class.** San Jose. InfoMind. Call: (408)243-1121.

**November 8 Advanced NetWare System Administrator 3.11 Seminar.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 8 Beginning PageMaker Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 8 Claris FileMaker Pro II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**November 8 Netware 3.11 To 4.0 Update Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 8 Netware 4.0 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 8 QuarkXPress II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**November 8 WordPerfect For The Legal Profession Class.** Walnut Creek. Computer Education Center. Call: (510)937-2566.

**November 8–10 Autodesk Animator Pro Class.** San Francisco. SF State Extension. Call: (415)904-7700.

**November 8 & 15 WordPerfect Class.** San Mateo. Community Career Education Center. Call: (415)345-0753.

**November 9 Beginning dBase IV Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 9 Beginning Freehand Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 9 Beginning Windows Class.** Oakland. California Computer Options. Call: (510)444-5700.

**November 9 Business Redesign Through Information And Telecommunications Technology Class.** San Francisco. SF State Extension. Call: (415)904-7700.

**November 9 Intermediate Lotus For Windows Class.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 9 Netware 3.11 To 4.0 Update Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 9 Netware 4.0 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 9 PageMaker I Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**November 9 Power Mac Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 9 UNIX Direction And Strategy Seminar.** Sacramento. Novell Call: (408)747-6070.

**November 9 WordPerfect For DOS, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 9–10 PC Troubleshooting & Repair Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.

**November 9 & 11 Beginning Word Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 9 & 11 Intro To The Mac Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 9–11 Microsoft Project Class.** San Francisco. SF State Extension. Call: (415)904-7710.

**November 10 Beginning Persuasion Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 10 Intermediate Paradox For Windows Class.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 10 Netware 3.11 To 4.0 Update Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 10 Netware 4.0 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 10 Quattro Pro For DOS/Windows Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 11 Intro To HyperCard Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 11 Intro To Windows 3.1 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 11 Microsoft Access, Level I Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 11 Netware 4.0 System Manager (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 11–12 CorelDRAW Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 12 Intermediate Excel Class.** Oakland. California Computer Options. Call: (510)444-5700.

**November 12 Intermediate PageMaker For Windows Class.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 12 PageMaker For Macintosh Class.** Pleasant Hill. ACTech. Call: (510)685-6327.

**November 12 Windows 3.1 Beginners Seminar.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 12 Word 2.0 For Windows, Level 1 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 12 & 19 QuarkXPress Class.** San Mateo. Community Career Education Center. Call: (415)345-0753.

**November 13 Excel On PC/Mac Class.** San Jose. InfoMind. Call: (408)243-1121.

**November 13 T1.5 Seminar.** San Francisco. SF State Extension. Call: (415)904-7710.

**November 14 Lotus On DOS For Windows Class.** San Jose. InfoMind. Call: (408)243-1121.

**November 14 Word 5.1/6.0 For DOS, Level 1 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 15 Advanced MS-DOS 5.0/6.0 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 15 Beginning Lotus 1-2-3 For Windows 4.0 Class.** Oakland. California Computer Options. Call: (510)444-5700.

**November 15 TCP/IP (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 15–16 Local Area Networks: LANtastic To Novell Seminar.** Oakland. Excel Micro Solutions. Call: (510)836-2040.

**November 15 & 17 Beginning Persuasion Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 15 & 18 Macromedia Director Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 15 & 22 Advanced Quark Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**November 16 Advanced QuarkXPress Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 16 Beginning Excel For Windows Class.** Emeryville. Informational Data Networks. Call: 1-800-696-5267.

**November 16 High-Impact Business Writing Seminar.** Concord. National Seminars Group. Call: 1-800-258-7246.

**November 16 Intermediate Excel Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 16 Lotus 1-2-3 (2.X And 3.X), Level 2 Class.** Emeryville. Northwest Computer Systems. Call: (510)653-0808.

**November 16 Macintosh Basics II Class.** San Mateo. Community Career Education Center. Call: (415)345-0753.

**November 16 Microsoft Word II Class.** San Francisco. Media Alliance. Call: (415)771-7133.

**November 16 TCP/IP (CNE) Class.** Oakland. MIS Services Corp. Call: (510)208-5700.

**November 16 & 18 Beginning Excel Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 16 & 18 Beginning QuarkXPress Class.** San Francisco. Ciber Training Center. Call: (415)974-7206.

**November 16 & 23 Modern Telecommunications In The "Information Age" Class.** San Francisco. SF State Extension. Call: (415)904-7710.

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•Intel 486SX33 /256K Cache • 4MB RAM • IDE VL BUS • 240MB Hard Disk • Spider VL Plus w/1MB SVGA Card •SVGA Monitor NI .28 • Mitsumi CD-ROM • Sound Wonder (S. Blaster 2.0) • Pair of Speakers • 1.2 & 1.44 Floppy Drives • Minitower case • 2S, 1P, 1G • Mouse • 101 Key Keyboard • Manual & Software

**$1389**

## NOVELL NETWORKS
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## AMERICAN MOTHERBOARD

### NICE

| | |
|---|---|
| 486-33/DX2-66 256K VLB | $459/679 |
| 486-50/DX2-66 256K Mini EISA VLB | $679/759 |

| | |
|---|---|
| 486-33/DX-66 256K, 3 VLB Slots | $459/679 |
| 486-50 256K, 3 VLB Slots | $679 |
| 486-33/DX-66 256K EISA, 3 VLB Slots | $699/899 |

ORCHID

| | |
|---|---|
| 486-33/DX2-66 256K VLB | $479/749 |
| 486-50/256K VLB | $619 |

| | |
|---|---|
| 486SLC-50 64K Cache ISA | $265 |
| 486SLC-66 64K Cache ISA | $299 |

| COMPUTER SYSTEM | IDE HARD DRIVE 120MB | 210MB | 340MB | SYSTEM CONFIGURATION |
|---|---|---|---|---|
| 486DX66/256K | $1375 | $1424 | $1519 | • 4MB RAM<br>• 1.44 TEAC |
| 486DX50/256K | 1299 | 1335 | 1439 | • 1.2 TEAC<br>• Minitower |
| 486DX40/256K | 1119 | 1155 | 1259 | • 200 w/PS |
| 486DX33/256K | 1148 | 1195 | 1299 | • 101 Keyboard<br>• IDE 2FD, 2HD |
| 486DLC33/128K | 915 | 945 | 1049 | • SVGA .28 Monitor |
| 386DX40/128K | 886 | 925 | 1029 | • SVGA w/1MB<br>• 2S, 1P, 1G |

## VESA LOCAL BUS SPECIAL

### 486/33/256K

**$1269**

- 4MB RAM
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- VL Bus IDE Controller
- 2S, 1P, 1G
- Mini Tower Case
- 101-KeyKeyboard

| | |
|---|---|
| 486SX33 | $1159 |
| 486CX40 | $1249 |
| 486DX50 | $1419 |
| 486DX266 | $1499 |

### MOTHERBOARD

| | |
|---|---|
| 486DX/66/256K VL Bus | $619 |
| 486DX/50/256K VL Bus | 535 |
| 486DX/50/256K VL Bus | 445 |
| 486CX/40/256K VL Bus | 359 |
| 486DX/33/256K VL Bus | 389 |
| 486DLC33/128K | 149 |
| 386DX/40/128K | 128 |

### MONITOR

| | |
|---|---|
| SVGA (1024x768) .28 | $245 |
| SVGA (1024x768) .28 Non-Int | 269 |
| SVGA Viewsonic 4E | 285 |
| SVGA Viewsonic 6E Non-Int | 299 |
| SVGA Viewsonic 15 Non-Int | 489 |
| SVGA Viewsonic 17 Non-Int | 1079 |
| MAG 15F/17F | 525/1079 |
| NEC 3FG/4FG | 649/749 |
| SVGA 15/17" Arche | 399/789 |

### VIDEOCARD

| | |
|---|---|
| Cirrus Logic w/1MB True Color | $55 |
| Trident 1MB | 57 |
| Tseng ET4000 | 85 |
| Spider VLB w/1MB | 95 |
| Spider VLB w/2MB | 139 |
| Diamond Stealth VL Bus w/1MB | 179 |
| Orchid Fahrenheit VL Bus w/1MB | 179 |
| Diamond Viper VLB w/2MB | 389 |
| ATI Pro VL Bus w/2MB | 349 |
| Orchid Celsius VL Bus w/2MB | 319 |
| Orchid P9000 VL Bus w/2MB | 345 |
| AIR P9000 VL Bus w/2MB | 385 |

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### CASES

| | |
|---|---|
| Mini Tower | $49 |
| Medium Tower | 75 |
| Baby AT | 65 |
| Full Tower | 99 |

### MODEMS & FAXES

| | |
|---|---|
| Zol 2400 Baud | $39 |
| Zol 96/24 Modem & Fax w/Win | 55 |
| Zoltrix 14.4 Modem & Fax | 165 |

### HARD DRIVES

| | | |
|---|---|---|
| **CONNER** | | |
| CP30084E | 80MB IDE | $159 |
| CP30104 | 120MB IDE | 169 |
| CP30204 | 210MB IDE | 219 |
| CP30254 | 250MB IDE | 225 |
| CP30334 | 340MB IDE | 299 |
| CP3544 | 540MB IDE | 545 |
| CP3540 | 540MB SCSI | 569 |
| CP1370 | 1.3GB SCSI | CALL |
| **MAXTOR** | | |
| 7120A | 130MB IDE | $189 |
| 7213A | 210MB IDE | 209 |
| 7245A | 245MB IDE | 239 |
| 7345A | 345MB IDE | 299 |
| LXT535A | 535MB IDE | 569 |
| LXT535S | 535MB SCSI | 569 |
| MXT540A | 540MB IDE Fast | 709 |
| MXT540S | 540MB SCSI Fast | 729 |
| MXT1240S | 1.2GM SCSI Fast | 1149 |
| **WESTERN DIGITAL** | | |
| WD | 213MB IDE | 199 |
| WD | 255MB IDE | 239 |
| WD | 340MB IDE | 290 |
| WD | 420MB IDE | 439 |

### KEYBOARD

| | |
|---|---|
| Chicony | $20 |
| Keytronic USA | 36 |
| Maxi Switch | 35 |
| Omnikey 102/Ultra | 89/99 |
| Focus w/Cal | 35 |

### CONTROLLERS

| | |
|---|---|
| IDE w/IO | $20 |
| IDE VL Bus | 40 |
| SCSI-2 VL Bus (AIR) | 235 |
| SCSI-2 VL Bus (Eorex) | 199 |
| SCSI VL Bus (Bustek) 545S | CALL |
| SCSI VL Bus (Ultrastor) 34F | CALL |

### MULTIMEDIA & CD-ROM

| | |
|---|---|
| Sound Wonder w/2 Speakers | 49 |
| Sound Blaster | 89 |
| SSound Blaster Pro | 130 |
| Sound Blaster 16ASP | 219 |
| Gallant Sound Card 16 SC 5000 | 125 |
| Texel CD Rom | 349 |
| Toshiba CD Rom 3401 | 399 |
| Sony CD Rom | 150 |
| Panasonic CD Room | 209 |
| Chinon SCSI | 359 |
| CD Software | CALL |

### MOUSE

| | |
|---|---|
| Microsoft Compatible | $15 |
| Microsoft Serial | 49 |
| Microsoft Bus | 69 |
| Logitech MouseMan | 49 |

### SIMMS & MATH

| | |
|---|---|
| 1MB SIMM | CALL |
| 4MB SIMM | CALL |
| 512KBx36 SIMM (72 pins) | CALL |
| 1MBx36 SIMM (72 Pins) | CALL |
| 4MBx36 SIMM (72 Pins) | CALL |
| Other | CALL |

## PALO ALTO
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**Palo Alto, CA 94306**
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**Dublin, CA 94568**
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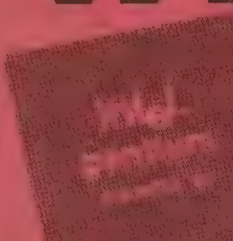
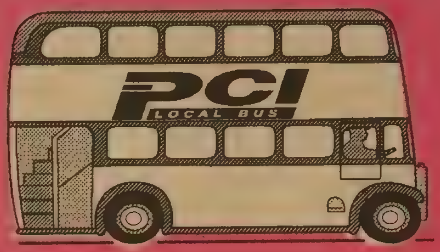


## About the Pentium™ Processor



33MHz x 32 bit = 132MB/SEC

## About the PCI Local Bus

The Pentium processor is the newest and most powerful member of Int's x86 family. The Pentium processor is 100% code compatible with previous members of x86 family, preserving the value of user's software investments. The Pentium processor incorporates a superscalar architecture, improved floating point unit, separate on-chip code and write back data caches, 64-bit external data bus, and other features designed to provide a platform for high-performance computing. The heart of the Pentium processor is its superscalar design built around two instruction pipelines, each capable of performing independently! These pipelines allow the Pentium to execute two integer instructions in single clock cycle, nearly doubling the chip's performance relative to an Intel 486DX2/66 at equal frequency. The bottom line, users of the Pentium will enjoy a substantial increase in performance and speed.

**The Pentium™ Processor is Fast, Powerful and Available Now at NOW**

PCI (Peripheral Component Inter-connect) is a high performance Local Bus standard that provides a processor independent data path between the CPU and high speed peripherals. Jointly developed by Intel and industry leaders, it's designed for current and next-generation PCs. PCI picks up where today's bus architecture leaves off, providing greater systems performance via a wider data path and increased expandability. PCI systems will support three to five performance-critical peripherals. Either by integrating them on board or by adding a PCI expansion card, such as multimedia graphics, controllers and LAN cards. Users of PCI will still be able to use ISA, EISA or microchannel add-in cards because PCI is designed to supplement, not replace, the existing bus standards. The most valuable benefits of PCI can be summarized in the following points:

**1. Transfer rate as high as 132MB/sec.**
**2. True Plug-and-Play, auto configuration ability. i.e. no jumper or IRQ settings!**
**3. Ability to add up to 5 PCI Local Bus add-in cards without overloading the CPU.**

# NOWMedia

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- 1.2 and 1.44MB Floppy Drives
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- Local Bus SVGA Card 1MB
- Medium-tower Case 230W PS
- 101 Enhanced Keyboard
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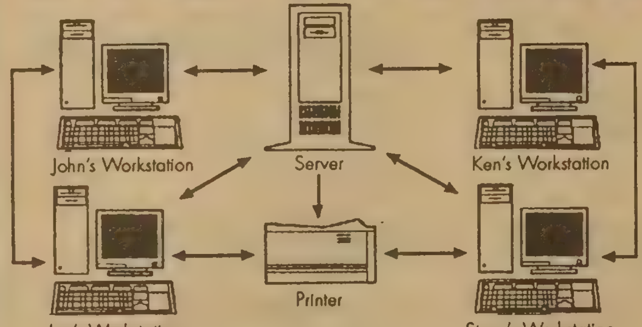

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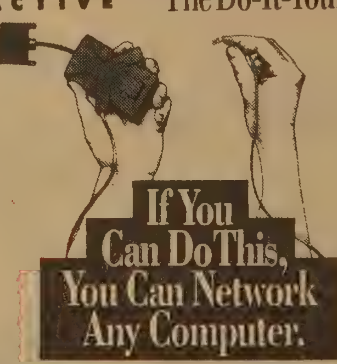
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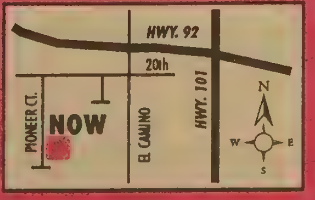

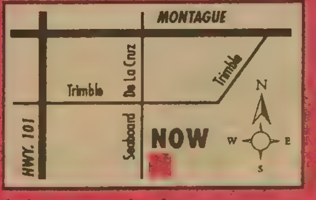

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*continued from page 38*

LAPTOPS

# COMPUTER OF THE MONTH:

## Hewlett-Packard's OmniBook 300

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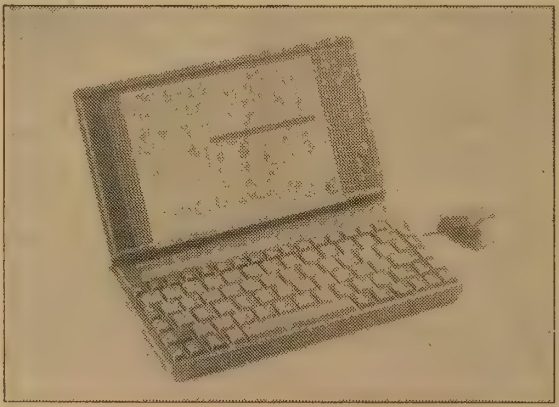
Hewlett-Packard doesn't seem to ever miss the mark these days. Their OmniBook 300 fills a niche that has been waiting for an innovative design. Several years ago, Hewlett-Packard introduced the 95LX, a palmtop computer that could be easily attached to a desktop personal computer. It featured a version of Lotus 1-2-3 built into ROM, which really made the 95LX wonderful for spreadsheet addicts. While there were other built-in applications, it was hard to make a case for this machine as a help to writers, the screen and keyboard were simply too small.

HP now offers the OmniBook 300, measuring 11.1" x 6.4" x 1.4" and weighing just under 3lbs. This is about as small as you can get and still include a standard-sized keyboard. The keys are not scrunched together. And although there is an Fn key that, among other things, invokes the numeric keypad, there are dedicated PgUp, PgDn, Home, and End keys. I could type on this machine all day. While the travel is not as great as my standard desktop keyboard, the only trouble I had was hitting the spacebar hard enough. I am sure that this is merely a matter of getting used to the touch of the OmniBook.

But the OmniBook has a lot more going for it than a good keyboard. This computer is the result of designing a subnotebook computer from the ground up. They did not just try to make a smaller and lighter machine. Rather, they thought about what the end-user would want and how to best provide it. The result is startling.



The display measures 9" and while not backlit, it is quite legible in most light. This design conserves power to increase battery life.

The OmniBook is powered by a 3.3v, 386SXLV chipset running at 20MHz. It comes standard with 2MB of RAM that is expandable up to 8MB. Because of the detail paid to all of the design features, it can run up to nine hours on the nickel metal hydride rechargeable battery pack. Additional packs ($99) are available. An AC adapter provides unlimited use as well as functioning as a battery pack charger. Recharges take about an hour and a half.

If you find yourself in a jam, you can use four AA alkaline or lithium batteries. This is the first portable I have seen that allows you to work without having to be concerned with battery life. There is also an icon on the screen illustrating how much charge is left in the battery pack.

The OmniBook comes in two different configurations. The less expensive model includes a 40MB hard drive. The alternative system uses a 10MB flash memory card. Although the OmniBook uses MS-DOS 5.0, memory compression software from DOS 6.0 is included, which can double the capacity for both the hard drive and flash memory cards. Although it has a higher list price ($2375), the configuration using flash memory cards gives longer battery life and seems to be more versatile.

The OmniBook is designed around a wide array of applications that are built into a removable ROM flash card. Included are Microsoft Word for Windows 2.0, Microsoft Excel 4.0, an appointment book, phone book, HP financial calculator, and Traveling Software's LapLink Remote Access. As you might guess, in addition to MS-DOS, Windows 3.1 is included in ROM. One advantage of having these

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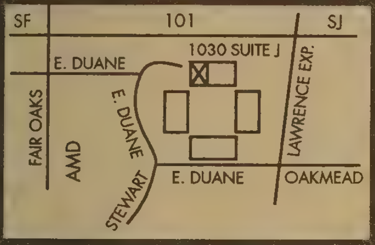

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applications on a removable ROM card is that they can be easily upgraded.

While you can run standard software on this small computer, its design incorporates hot keys for each of the built-in applications. To access any of them, simply press the appropriate hot key. You can smoothly shift back and forth between the different applications, without losing your work, by hitting the hot keys. This means that you can work on a report or letter, shift to the phone book, then recalculate something in a spreadsheet, and return to the word processing document. It is advisable to save from time to time, but the applications and data will stay in memory just as you left them. Even when you turn the computer off, everything will stay in place. Turn the computer on and you will be exactly where you were at the end of the last session.

## INFRARED CONNECTIVITY

Just as I prepared to turn in this column, I learned of two products for the OmniBook 300 that enhance its value. In my coverage, I did not have space to mention that in addition to serial and parallel ports, there is an infrared port by which you can send and receive data. While this sounds great, there have been few opportunities to utilize this feature.

Now, Extended Systems lets you take advantage of the infrared interface with the JetEye PC and JetEye. The JetEye PC attaches to the serial port on your PC and provides an infrared link with the OmniBook. After installing the JetEye PC, simply hold the OmniBook next to it and press the appropriate keys to transfer files. It takes advantage of the LapLink Remote software, but works without a hard wired connection.

The second product from Extended Systems, JetEye, works with a variety of Hewlett-Packard products in addition to the OmniBook. You can print files to either an HP LaserJet, DeskJet or DeskJet portable printer through the infrared port. Attached between the printer and the desktop PC, JetEye lets you print from your desktop as well as directly from the OmniBook without changing any of the cables. JetEye acts as a double input port to the printer.

I have used the comparable device which Extended Systems made for the HP 95LX, Hewlett-Packard's original palmtop computer, and it worked like a dream. I am sure this new model offers the same ease of use and convenience.

—Ed Kahn

Hewlett-Packard has solved the mouse problem by building in a device that works just like a mouse, but is actually a little different. You press a button located on the right side of the machine, just above the keyboard. Out pops a wireless device that you move around like a mouse. The difference is that you do not need a surface to roll it on. This makes working on your lap easy. Also, it seems a lot better than most of the trackballs I have used.

While Excel and Word for Windows need no further comment, the phone book left something to be desired. I have tried from the earliest days of my computing to never have to reenter a phone list. Through different word processors, operating systems, and computers I have been successful. But this HP phone book does not have an import or export function. This is a serious weakness. There is a provision for bringing in lists from the HP 95LX. But even this was problematic as the addresses were placed in the note section rather than in the address field.

There is not floppy drive with the OmniBook 300. From the beginning, HP decided this was not supposed to be a standalone computer that would be your only machine. Instead, they correctly saw this as something to be used in conjunction with a desktop PC. To this end, they included a cable for connecting to the serial port of a host machine. You can transfer files between the desktop and the OmniBook by using LapLink Remote which works wonderfully.

With so much software built into the OmniBook, there is practically no need for a floppy drive. I found it easy to transfer essential files to the OmniBook.

In the flash card configuration, there are two PCMCIA slots that let you plug in a variety of devices. HP offers a communication package ($379) that includes a fax/modem card with Microsoft Mail 3.2 and WinFax LITE as well as DynaComm communications software.

I could spend more time describing all of OmniBook 300's features, but it is enough to say that if you regard a portable as a satellite to a larger computer, this is the one to check out. In addition to the Hewlett-Packard quality we are used to, they also provide unlimited free support for both hardware and software problems. ■

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*continued from page 76*

tools, to high-powered outbound marketing "engines."

Starting with literature fulfillment/lead management functions, as new leads come into the system, they are processed the way normally done in your company, but are then presented back, via the automated system, to inside sales for follow-up and qualification, to marketing services for literature packages, and to inside and/or outside sales or dealers to be closed.

Analyses include measurements like "cost of leads by lead source" (to manage advertising, direct marketing, and PR spending), and identification and evaluation of your best customers as a group, so you can target more customers just like them.

Marketing managers use the system as an outbound marketing "engine" to drive sales. They find out the characteristics of their best customers, then develop ways to target other similar customers. They develop computer supported sales techniques that combine direct mail, telemarketing, and field sales in the way that gives the best account penetration for the buck.

## PLATFORM ISSUES: IBM PC VS. MAC, DOS VS. WINDOWS

My judgment of both the platform (IBM PC vs. Macs) and operating system (DOS vs. Windows) is colored by my experience with using effective tools that are widely available.

So far I have found better software (and more available low-cost hardware options) in the IBM PC world. I have also found the basic building blocks of a PC system to be more common in companies. Given this, my choice is usually a networked IBM PC class machine. Macs do show up in marketing communications departments, and many salespeople do feel more comfortable with the Macintosh. But I have found that with Windows (and the available support to solve problems) the sales staff can be converted to IBM PCs.

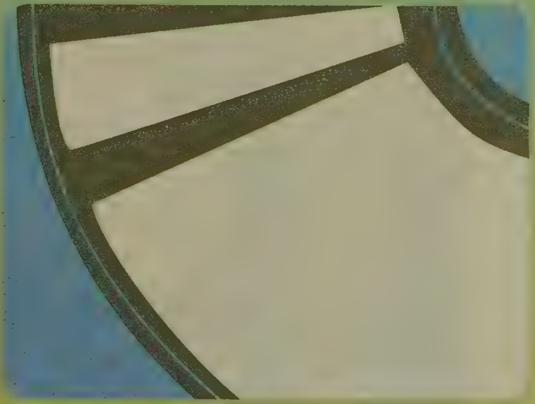
As for Windows vs. DOS, the approach is still the same; find the right software to do what you need now (and will need as your company grows). Then, see if it runs in Windows as a MS-DOS session. Most MS-DOS contact managers will. Also, the better MS-DOS contact managers have already introduced Windows versions or are planning to, and you should be able to import all of your data and system customized information into the Windows version. If you need PC MSA, start now, don't wait for the Windows program of your dreams.

Two highly recommended and useful programs are: Goldmine, by Elan Software, for networked and standalone PCs; and ACT! for Windows, by Remote Control International, for standalone PCs. Start by looking at these programs. See if they meet your needs and are easy enough to use.

## A NEW LEVEL OF SUCCESS

Successful PC MSA involves a process of learning new ways to manage sales contacts, salespeople, sales groups, and marketing activities. The companies that put what they learn into action in their marketing and sales operations can achieve a new level of success. For you to succeed with PC MSA you will need a roadmap. You also need to know where you are now and where you want to go. You might also consider expert help, such as the Denali Group and the Sales Automation Association as educators, and THE OMT GROUP as consultants, to best evaluate and implement your sales and marketing automation system. ■

# Multi Media & beyond



## Beyond Photoshop with Kai's Power Tools;

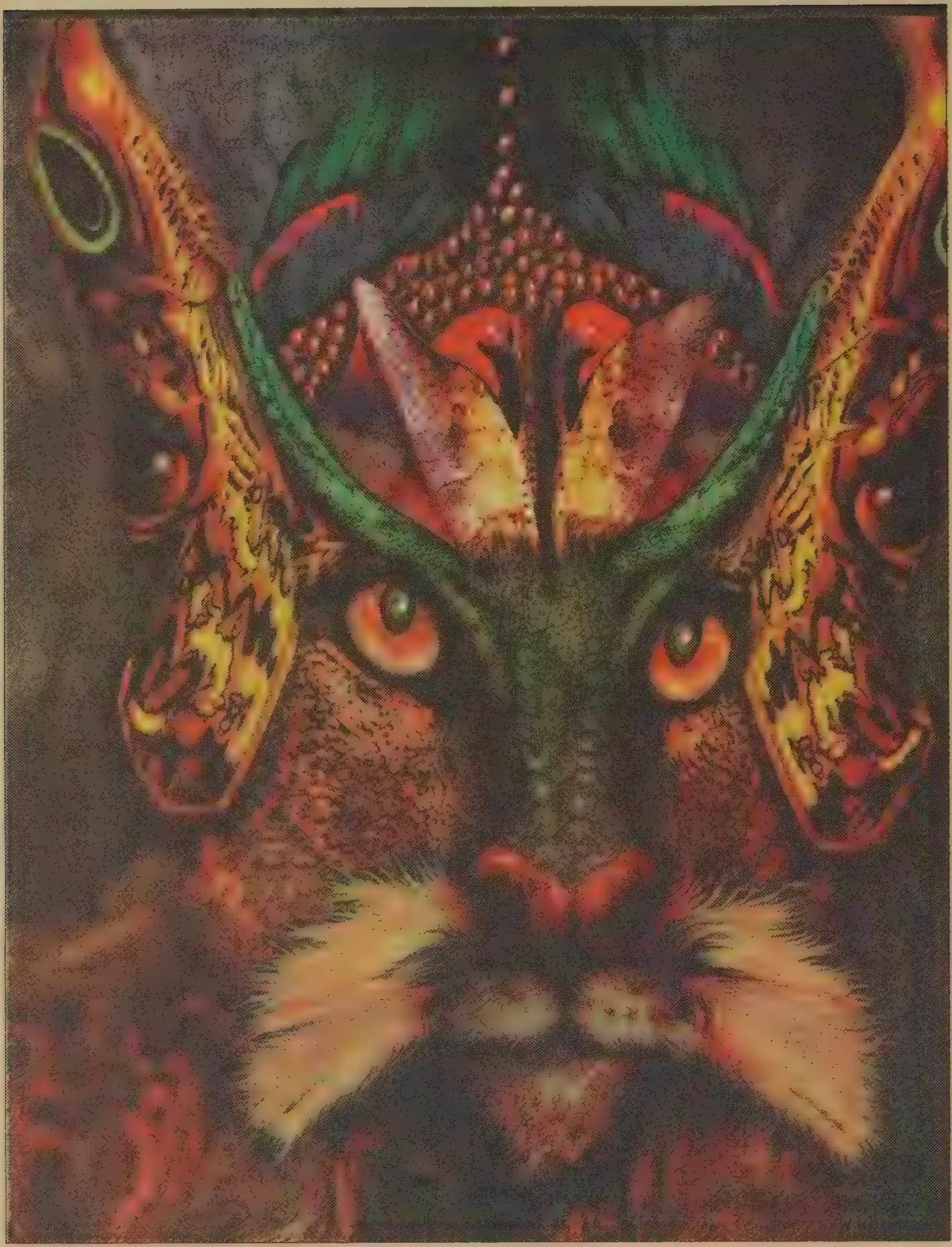
## Mac color printers;

## Seybold San Francisco preview;

## Commodore's CD32;

## CD-ROMs

Opulent Fauna, by Bill Niffenegger, is a computer generated painting that utilizes small samplings of nature photography.



© 1993 Bill Niffenegger/Chicago

# Kai's Power Tools and the KPT Community

## Devoted Users Of Kai's Power Tools Meet In Special America Online Forum

BY CHRIS OKON

*Copyright © 1993 by Chris Okon. All rights reserved. Chris Okon is a San Francisco freelance writer specializing in multimedia and telecommunications issues.*

**Like most artists,** a digital artist will use a variety of tools—whatever it takes—to render a personal vision. Adobe Photoshop, Fractal Design Painter, Stratavision Infini-D or Micro Frontier ColorIt are just a few names batted about by artists exploring the digital domain. Say KPT, though, and you're talking about more than a graphics program. You're talking about community.

KPT, or Kai's Power Tools, are a set of thirty-three powerful Macintosh plug-in 24-bit extensions that enhance and simplify the special effects capabilities of most graphics programs that follow the Adobe Photoshop standard. Produced by HSC Software of Santa Monica, CA, KPT includes filters and generators for exploring and designing textures, fractals, gradients, and other special effects. KPT v2.0, due for release by early November,

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CD-ROM Drive only, requires SCSI Interface & drivers, for IBM or MAC

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| **Toshiba XM-3401B** | 200ms avg. access, 330KB/sec trf, 256KB buffer, Photo CD multisession, XA, SCSI-2, internal | $399 | External 3401E $539 |
| **Teac CD-50 CD-ROM** | 265ms avg. access, 350KB/sec trf, 256KB buffer, Photo CD multisession, XA, SCSI-2, internal | $339 | External OEM $439 |
| **Texel DM-3024 Drive** | 265ms avg. access, 300KB/sec trf, 64KB buffer, Photo CD multisession, XA, SCSI-2, internal | $339 | External 5024 $469 |
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| **Creative Labs SB Pro 16-ASP**<br>16-Bit Stereo,Free Ency,CD,Voice SW | $219 |
| **MediaVision ProAudio Spectrum**<br>16-Bit Stereo, SCSI CD Interface | $139 |
| **MediaVision ProAudio Studio**<br>16-Bit Stereo, SCSI CD Interface | $209 |

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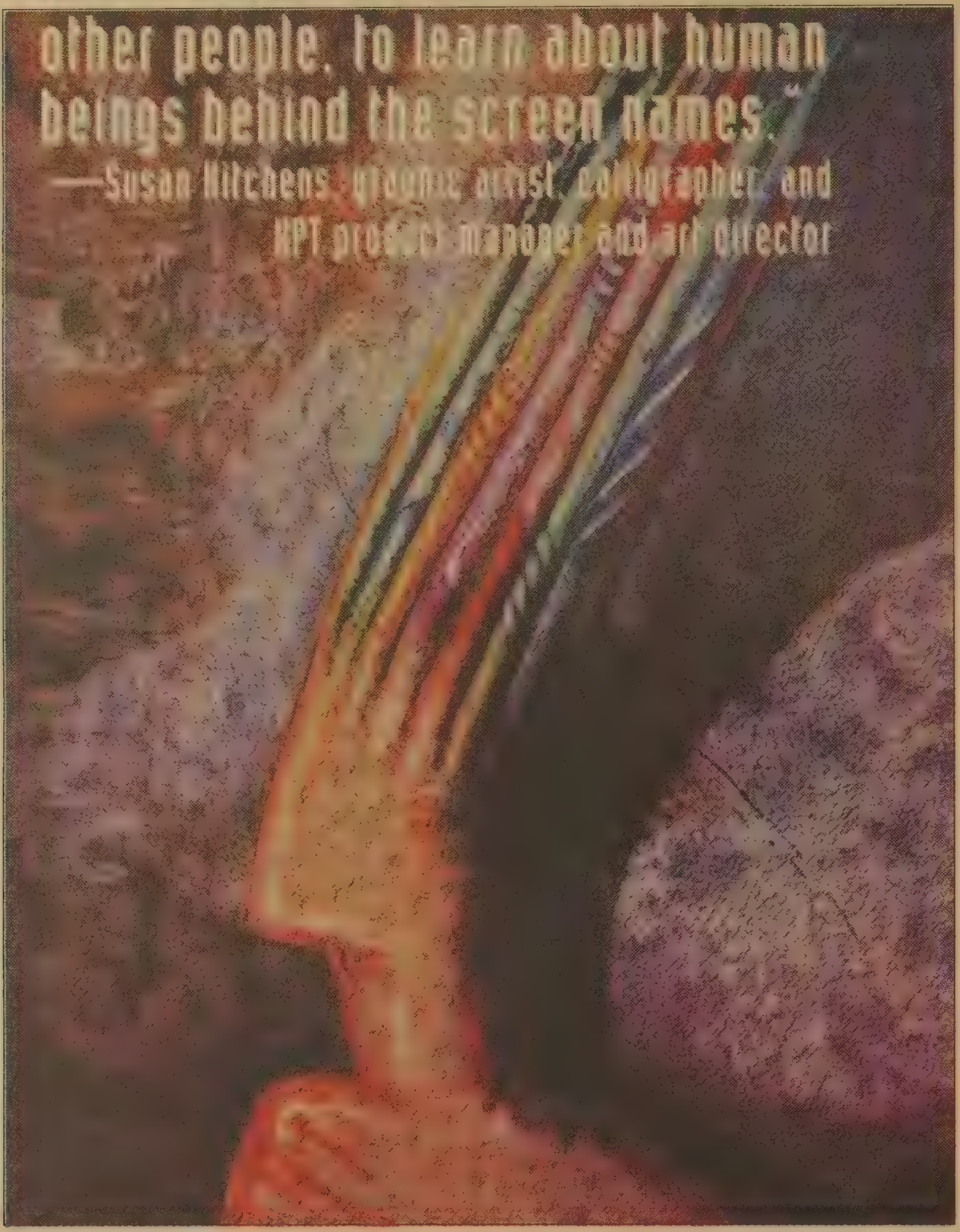
"I found my perspective changing with the medium that allows me to connect to other people, to learn about human beings behind the screen names."
—Susan Kitchens, graphic artist, calligrapher, and KPT product manager and art director



Regalia, by Bill Niffenegger, uses digitally created textures to give the piece a rich tactile feel that belies its computer produced origins.

© 1993 Bill Niffenegger/Chicago

promises faster performance, real-time previewing and an interface that is even more direct and inviting than v1.0's. Current users of KPT will see improvements in the image extraction preview, apply modes, transparency controls, keypad control and documentation as well as additions to the Gradient Designer, Fractal Explorer, Texture Explorer, and Path Gradients extensions. A Windows version is in the works.

KPT's interface invites you to explore the back alleys and secret paths of color and light that can appear on a color monitor. Underneath, though, is a powerful algorithmic engine that enables complex graphical manipulations. Without something like KPT, you would have to tweak curves, set levels, and work by trial and error to get the color values and effects you wanted. (One filter in particular, Video Cyclone, cycles an image through a seemingly endless progression of color palettes and acts as a kind of "what-if" presentation of color schemes. Watching this happen is mesmerizing, and delightful.)

## KPT ONLINE FORUM

Kai's Power Tools are cool, no doubt about it. But talking about the tools as tools is only the beginning of a story that begins and continues online in a virtual community of people who use KPT. Online product forums are not new. The KPT forum, though, is unique. Residing on America Online, it invites people to proclaim and share ideas, questions, solutions, philosophies, tricks, and epiphanies about art and expression. Several folders hold discussions: Blue Sky Theories, General Novice Q&A, General Ramblings, KPT Tips and Tricks, a KPT Wish List and more. Some folders discuss KPT with specific programs like Photoshop, Premiere or ColorIt. The Geo Directory contains information about individuals that makes it easy for birds of a feather to connect. The Blue Sky folder, for example, addresses the world beyond KPT—the future of art, society, and ethics.

## KPT TOOLS AND COMMUNITY

The Kai of Kai's Power Tools is Kai Krause, a longtime pioneer of computer graphics who is known for pushing available technology beyond its perceived limits. As someone who became an early master of Adobe Photoshop, he began posting his tips and techniques for Photoshop on America Online a few years ago. The tools, the joint inspiration of Kai and algorithm-wizard Ben Weiss, evolved from the tips.

The forum Kai's Power Tips for Photoshop was the beginning of a virtual community of people who were using digital tools in their art. Kai used online technology to bring like-minded people together. He once made a list of the women who were participating in the Photoshop forum, sent them all a note asking them to introduce themselves, and

## RESOURCES:

**Kai's Power Tools**
HSC Software
1661 Lincoln
Blvd., Ste. 101
Santa Monica, CA
90404
(310)392-8411

**America Online**
8619 Westwood
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Vienna, VA 22182
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| | 1900/4MB/120MB HD | $1,795 |

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| Conner | 170MB IDE | $189 |
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| | 250MB IDE | $232 |
| | 350MB IDE/ 520MB IDE | $299/$565 |
| | 360MB SCSI | $359 |
| Fujitsu | 540MB IDE/ SCSI | $585 |
| Maxtor | 130MB IDE | $175 |
| | 245MB IDE | $219 |
| | 340MB SCSI/345MB IDE | $349/$285 |
| Quantum | 85MB IDE/127MB IDE | $149/$165 |
| | 240MB IDE | $219 |
| | 1GB SCSI | $879 |
| Seagate | 40MB IDE | $129 |
| Toshiba | 1GB SCSI | $855 |
| WD | 212MB IDE/250 MB IDE | $195/$219 |
| | 340MB IDE/420MB IDE | $279/$389 |

## MONITORS

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| ADI | | 14" Microscan 3E NI | $ 305 |
| KFC | | 15" .28 1024x768 NI Flat Digital | $ 450 |
| | | 17" .26 1280X1024 NI Flat Digital | $ 789 |
| MGC | | 15" .28 1280x1024 NI Flat XGA | $ 405 |
| MAG | MX15F | 15" .28 NI Flat | $ 485 |
| | MX17F | 17" .28 NI Flat | $ 955 |
| NANAO | F5501 | 17" .28 1280X1024 | $1010 |
| | F5501W | 17" .28 1280x1024 | $1070 |
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| Novell | Netware Lite w/ NE2100 Adapter | $129 |
| | Netware 3.12 5 Users | $575 |
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| SMC | Elite Plus 16 TP/ Coax | $ 125 |
| | Elite Ultra 16TP/Coax | $ 97 |

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| | Acura 14.4 Fax Modem Ext | $255 |
| Intel | 14.4 Fax Modem Int /Ext | $199/ $219 |
| Practical P | PM14.4Fax Modem Int/Ext | $209/ $225 |
| | PM14.4 Pocket Fax Modem | $354 |
| US Robotics | Sporter 14.4 Modem Int/Ext | $159 $169 |
| | Sporter 14.4 Fax Modem Int/Ext | $169/ $179 |
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| | Discovery 8 Multimedia Kit | $395 |
| Media Vision | Pro Audio 16 Basic | $129 |
| | Pro Audio 16 | $155 |
| | Pro Audio Studio | $215 |
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| | Pro Movie Studio | $315/$325 |
| | Pro 16 Multimedia System II | $875 |
| | Midi Mate | $ 49 |
| Misumi | 350MS CD-ROM w/ Kit | $179 |
| NEC | CDR-38 Portable CD-ROM | $439 |
| | CDR-84-1 Internal CD-ROM | $409 |
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| | CD Express Kit w/ CDR-27 | $299 |
| Panasonic | 562 310MS | $249 |
| Sony | CDU31A CD-ROM Int/Ext | $179/$239 |
| Texal | DM-3024 Internal CD-ROM | $349 |
| | DM-5024 External CD-ROM | $449 |
| Toshiba | 3401B 200MS Internal CD-ROM | $389 |
| | 3401E 200MS External CD-ROM | $489 |

## CONTROLLERS

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|---|---|---|---|
| Always | IN 2000 | | $179 |
| Adaptec | 1522/1522K | SCSI | $ 79/$132 |
| | 1542C/1542CK | SCSI | $190/$232 |
| | 2742TK | EISA/SCSI | $369 |
| Buslogic | BT445S | VLB/SCSI | $289 |
| | BTB747AK | EISA/FAST SCSI | $389 |
| Orchid | VLB/IDE | | $ 65 |
| Promise | DC200 | IDE CACHE | $105 |
| | DC2040 | SCSI CACHE | $159 |
| | DC-4030VL | VLB/IDE CACHE | $139 |
| Trantor | T130 | SCSI | $ 75 |
| | T348 | Parallel/SCSI Plus | $149 |
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| | 34F | VESA/ SCSI | $269 |

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| HP | ScanJet IIC | $1395 |
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| | Scanman 256 w/ OCR SW | $ 219 |
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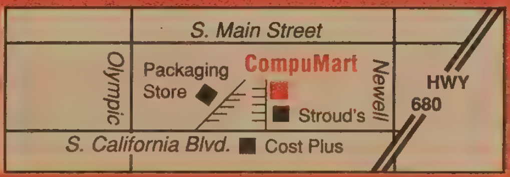

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| | Graphic Ultra Pro VLB 1MB/2MB | $249/$339 |
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| Tseng | ET4000VLB | $115 |

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| Citizen | GSX-230/ GSX-240 | $249/$ 295 |
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| Panasonic | KX-P2123/ KX-P2124 | $219/$ 339 |
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| HP | Laserjet 4L/4/4M | CALL |
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| Epson | ActionLaser 1000/1500 | $669/$ 699 |
| | EPL-8000 | $ 899 |
| Microtek | TrueLaser 6PPM 2 MB 35 Fonts | $ 999 |
| Panasonic | KX-P4410/ KX-P4430 | $519/$ 689 |

## SOFTWARE

| | | |
|---|---|---|
| Aldus | Pagemaker for Windows | $485 |
| Borland | Borland C++ & Application Frame | $485 |
| | Paradox for Windows | $129 |
| | Dbase IV | $459 |
| | Quattro for Windows | $ 59 |
| Corel | Corel Draw & CD for Windows | $365 |
| Lotus | 1-2-3 for Windows/4.0 Upgrade | $299/$ 97 |
| | AmiPro for Windows Upgrade | $ 69 |
| | Freelance for Windows | $335 |
| Micrografx | Picture Publisher | $199 |
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| Microsoft | Excel for Windows | $295 |
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asked them to "Reply to all." The result was an instant Photoshop Women's Forum as each woman learned about the others. In the KPT chats, Kai (or AFC Kai, as he is known on AOL) continues to make connections, and voilà, a virtual community emerges:

AFC Kai : hey everyone, especially the new faces, introduce yourself in a line or 5.....
AFC Kai : that way you can start talking to each other (click people button stretch window and message who
AFC Kai : you like)
AFC Bill : < Bill - Chicago Computer graphics artist....move millions of pixels
LeeVaris: <—- photographer, movie posters video boxes KPT art
Croton : Kyle - just graduated college with BFA in fine arts, now I'm looking for work
KitP : <—-Kit..electronic artist and photographer
MGould : <—independent video producer and computer artist.
BrianLloyd : <—-Photographer, Experimental electronic musician, Anthro major gone photoshop/painter/KPT nut
Filentropy : <—-Production Artist, CD-ROM developer and Photoshop junkie
JMSBND007 : <—-Illustrator/Graphic Designer/Photoshop Nut/ self taught juggler/ magician!
KMcGreggor : <— Quiet, subdued banjo player. Occasional write graphics software for some computers.

AFC Bill, for example, is Bill Niffenegger, a Chicago artist who first met Kai Krause a few years ago in the AOL Photoshop forum. "We started talking. We exchanged disks. I sent him a Syquest cartridge with my work and said 'Take a look at this.' And he did the same. I have the 0000.1 version of KPT," says Niffenegger, who uses KPT in his work in addition to many other tools. "I'll use KPT to make a nice background, for example, or to play with texture or bring out highlights. There's a wide variety of different uses," he says. He goes on to explain his work with a computer: "To me, the computer is very open-ended, an incredibly powerful tool. I don't think I use a computer because it's faster, because when all is said and done, I don't know if it is. The computer transcends physics so well that it allows many considerations you'd have with analog media, such as wearing out a piece of expensive paper, to be blown out the window."

Niffenegger also works as an adviser in the KPT chats, teaches digital art at different institutions, and demonstrates HSC products at trade shows and conferences. "If I see someone struggling to get an answer in a chat, I find them and get them the answer behind the scenes. There are five to seven conversations going in the general chat at one time, hundreds going through IMs (Instant Messages)," he says.

Another often-heard voice in the KPT forum is Susan Kitchens, also known as KPT Susan. As a graphic artist and calligrapher, Kitchens "was rummaging around the Photoshop Forum one day and came across the Photoshop tips folder," she says. "'Who is this Kai guy?' I asked, 'and where does he or she get off naming a folder after himself?'" She soon learned the depth of knowledge available on the forum, and began to send email directly to Kai. Kitchens received what she later learned was the beta version of KPT. After seeing a few demos and meeting Kai in person she realized the power of the tools. "The thing that struck me first was the interface," she says. "It's cool. It's an invitation that says 'come up to this level of productivity.' I thought, 'I want to explore and see what I can do with this.'" Kitchens was asked to demonstrate KPT at the Fall '92 Comdex in Las Vegas, and soon after received an offer from HSC's President John Wilczak to become the KPT product manager and art director.

"What has continued to draw me is the online community," says Kitchens. "I found my perspective changing with the medium that allows me to connect to other people, to learn about human beings behind the screen names."

Julie Sigwart, technical services manager at HSC, also discovered Kai's early online forum while she was working as an illustrator and cartoonist for *The Arizona Republic*. After downloading beta versions of the KPT filters and incorporating them into her illustrations, she eventually met Kai at a conference and saw the full potential of the tools. Like Kitchens, Sigwart was asked to demonstrate KPT at Comdex and was later offered the position at HSC.

As technical services manager, Sigwart notices a pattern with KPT users. "In the first round, people might have questions about installation," she says. "In the next round, people ask, 'How did you do this or that effect?' This type of question-and-answer captures the spirit of the AOL forum, when Kai began uploading and sharing his special tips."

In addition to traditional phone support, HSC makes the most of the online forums. Plans are to expand from AOL to CompuServe and Internet. "My email list is hundreds," says Sigwart, describing her communication with customers, vendors, and other people in the industry. The online forums and chats are used to both gather and disseminate information. Beta versions of software or individual programs are also sent online, thus saving the cost and time of preparing physical packages. New product announcements are introduced online.

HSC works to maintain the special online folders. "We ask people to state their wishes and to offer their suggestions for the filters," says Sigwart. "We encourage people to upload their tips and tricks. And we encourage a lot of online networking so people can learn about other people who are doing similar work or who have the same interests," she says.

"It's about the cheapest computer school you can go to to get up to the minute information," Sigwart says. "Classes at universities are usually out of date. Online, you can talk to different companies and people. You can ask strange, obscure questions and be guaranteed that someone will have the answer."

The online KPT community goes beyond the use of the tools. It's a way of putting your arms around just what is happening with, and because of, the new media. "It ain't a table, and t-square, and ruling pen, and exacto knife industry anymore," quips KPT Susan. There's a lot to be explored, and good tools make the job easier. ■

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# Color Printers For Publishing And Multimedia

## Plus: Mac Ergonomics

BY TONY REVEAUX

In both desktop publishing (DTP) and multimedia, complex professional communications work was able to migrate to the desktop level with the personal computer. DTP has matured in less than ten years—now even color pre-press documents are being configured before going to the printer.

The book on multimedia is still being written—and it may be a "to be continued" series at that, but there are many points at which DTP and multimedia share new technologies and products.

For some producers an important milestone is the arrival of lower-cost, compact versions of color dye sublimation printers, currently being offered by SuperMac, Kodak, Laser Master Corporation, Sharp, and DuPont Imaging Systems, among others.

Color printer prices have plummeted along with many other peripherals and devices like memory storage and scanners. Once encountered only in the service bureaus, color printers are now being included in corporate communications, advertising, design, publishing, and media production configurations—not so much for creating finished, deliverable products as for bringing in-house much more of the creative, conceptual, modeling, and proofing stages of production. Having a color printer in the office or studio can mean the instant display and turnaround of concepts instead of an overnight wait.

*Tony Reveaux, a San Francisco-based consultant, is the editor of* Computer Publicity News, *and writes the "MediaScan" column in* Film/TapeWorld. *He can be reached via Usenet (luna@well.sf.ca.us) or MCIMail 290-3008.*

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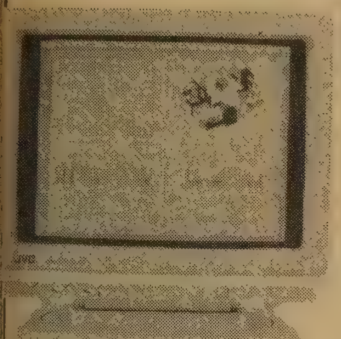

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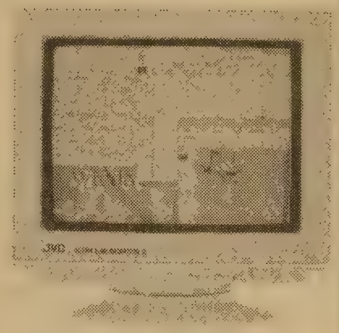

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Once encountered only in the service bureaus, color printers are now being included in corporate communications, advertising, design, publishing, and media production configurations.

Color laser printers, ink jet, thermal transfer, and dye sublimation (also known as dye diffusion, or "Dye Subs") produce color prints of varying quality. The highest quality is obtained with dye sublimation. It's the equivalent of "workstation level" color hard copy. It can produce prints of a photographic quality. (While a dye sublimation printer can deliver near-perfect comps and proofs for color pre-press work, it cannot be used as a match print. You still have to go to film for that.)

The print head heats a dye-impregnated ribbon, causing the dye to vaporize and diffuse as spots onto the coated paper. Dot intensity can be varied, creating smooth, continuous tone images without dithering. With the new stochastic screening halftoning, like that produced by Linotype-Hell's Diamond Screening (think fractals), even higher-quality, more photorealistic images can be produced on the desktop. It takes about three minutes to print one sheet, slightly longer for tabloid format. This kind of printer does not work on plain paper, so cannot serve as a multipurpose printer for the office.

For the multimedia producer dealing with effects, scenic design, advertising, and promotion, who needs to be able to quickly run concepts through several layers of client and management approval, the high cost of such output—from $3 to $5 per print—can be more than worth it. The cost is much lower than that of the same document produced at a service bureau. For this kind of producer, the "almost" quality of color prints from ink jet and other mid-range machines simply cannot pass muster with his demanding audiences.

## SUPERMAC'S PRICE BREAKTHROUGH

Until now, dye sublimation printers have been restricted to the $40,000-plus professional equipment found in print shops. SuperMac's SuperMatch ProofPositive Printer is available in full-

continued on page 306

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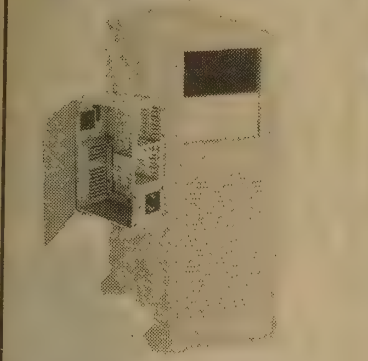

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| Toshiba 3401B/3401E CD-RIN (Int/Ext) | 415/535 |
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| NEC CDR 74/84-1 CD-ROM (Ext/Int) | 580/439 |
| Media VisionFusion CD-16 upgrade kit | CALL |
| NEC Multimedia Upgrade Kit (Int/Ext) | 895/995 |
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| ACUMOS SVGA Card 256/512K | 31/41 |
| TRIDENT SVGA Card 1MB | 54 |
| Diamond SpeedStar 24X 1MB 16 Mil Colors | 145 |
| Diamond Stealth VRAM 1MB Hi-Color | 199 |
| Diamond Stealth-24 DRAM 1MB ISA/VLB | 157/175 |
| Diamond Stealth Pro VRAM 1MB/2MB VLB | 255/355 |
| Diamond Viper (P9000, 2MB VRAM) | 385 |
| ATI Graphic Ultra Plus2 VRAM/w mouse | 277/307 |
| ATI Graphic Ultra Pro VRAM 2MB ISA/VLB/EISA | 330/345/399 |
| Genoa 7900 1MB 16 Mil Colors 24 Bit | 109 |
| ORCHID Pro-Designer II's 1MB Hi-Color | 129 |
| ORCHID Fahrenheit 1MB 24-Bit VLB/VA | 159/189 |
| Spider/Black Widow VLB 1MB | 95/209 |
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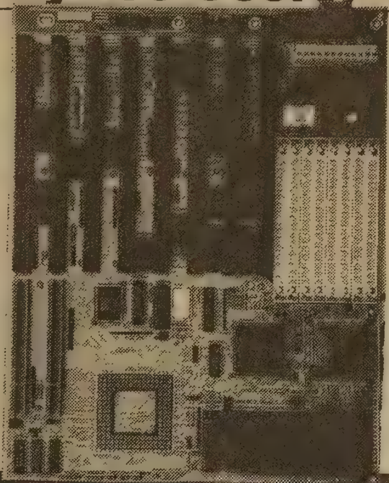

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| 486DX-33/128K | 409 | 569 | 386SX-25 | 86 | 246 |
| 486SX-25/128K | 219 | 379 | 486 EISA/VESA | CALL | CALL |

Basic system includes: Board & CPU, 1MB RAM, One Teac Floppy, IDE Controller, 101 Enhanced Keyboard, Mini Case w/200W PS, 2 Serial, 1 Parallel, 1 Game ports

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PC MAGAZINE EDITORS' CHOICE

Sept . 1992
Volume 1 Number 6 (U.K.)

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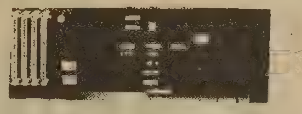

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| NANAO T660I (20" 1280x1024 .31 NI, Trinitron) | 2585 |
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| NEC 6FG (OEM) (21" 1280x1024 135MHz) | 2385 |
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| SEIKO CMI 2050 (1024X768 .31 NI) | 1495 |
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| VIEWSONIC V6E (14" 1024X768 .28) | 315 |
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| LOGITECH TrackMan Ser/Bus /PT | 72/79/99 |
| MicroSoft Mouse Ser/Bus | 69/79 |
| Handy Mouse | 10 |
| Microsoft DOS 6.0/Microsoft Windows 3.1 | 45/49 |
| Focus FK 9000 | 65 |

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| 2400 bps Data+9600 bps Send/Recv Fax Int Modem | 65 |
| Hi-Speed 14400 Fax Modem | 159 |
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| DC-680 Cache IDE VLB | 149 |
| DC-620 Cache IDE EISA | 199 |
| DC-820 Cache SCSI EISA | 385 |
| Adaptec 1542C w/o kit | 195 |
| IDE VLB Add-On | 45 |
| AT/IO (2S/1P/1G) | 14 |
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| IDE 1:1 2HD/4FD Controller | 45 |
| AT 1:1 MFM 2HD/2FD Controller | 45 |
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| Ethernet NE-1000/NE-2000 10-Base T | 58/69 |
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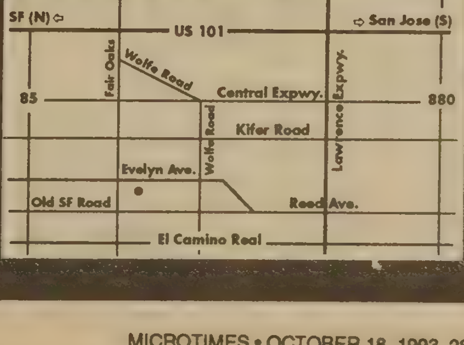

# CD32:

## Commodore's New Game/ Presentation/ Interaction Machine

### And Other News From The World Of Commodore

BY DOUGLAS J. NAKAHIHARA

On Friday, September 10th, at the World of Commodore Amiga held in Pasadena, California, Commodore Business Machines officially introduced the world's first 32-bit game console to the US market, called CD32. Except for the absence of a few connectors, the CD32 basically amounts to an Amiga 1200 wrapped around a custom double-speed multisession CD-ROM player. Commodore plans to sell CD32 for an amazing $399 list. You can't even buy a double-speed multisession CD-ROM for that price. Plus, Commodore is throwing in, essentially, an Amiga 1200.

Until the promised review unit arrives and I can go into more detail: some of CD32's features are a 14MHz Motorola 68EC020 CPU; 2MB of RAM; 1K non volatile memory; 4MIPS capability; 4-voice Amiga and 16-bit CD audio with stereo out; composite, S-VHS, and RF video outs; two ports for the 11-button controllers or standard Amiga devices (mouse, joystick, etc.); headphone jack with volume control; serial/keyboard port; and an external expansion port. It is possible to daisy-chain controllers to a maximum of eight. The top-loading CD player requires no CD caddy. As with the A1200 via the expansion port, it is possible to add virtually anything to CD32, including more memory, accelerators, SCSI, etc. There is also an internal connector for other expansion possibilities, according to early reports.

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| Smartlink 14,400 Fax/Data | **$149** |
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| Zoltrix 9600/2400 F/D | $55 |
| Zoltrix 14,400 Internal F/D | **$139** |
| Zoltrix 14,400 External F/D | $179 |
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| NEC CDR-84J - 280ms | $429 |
| Panasonic CD-522 - 385ms | $179 |
| Panasonic CD-562 - 320ms | **$225** |
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| Sony CDU-561 - 285ms | $369 |
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| TEXEL DM-3024 - 265ms | $349 |
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| ATI GUPro VLB | $359 |
| Diamond Stealth 24 | $159 |
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| BIOSTAR 486DX-50 Intel / 128K | $525 |
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| BIOSTAR 486DX2-50VL Intel/128K | $495 |
| BIOSTAR 486DX2-66VL Intel/128K | $595 |
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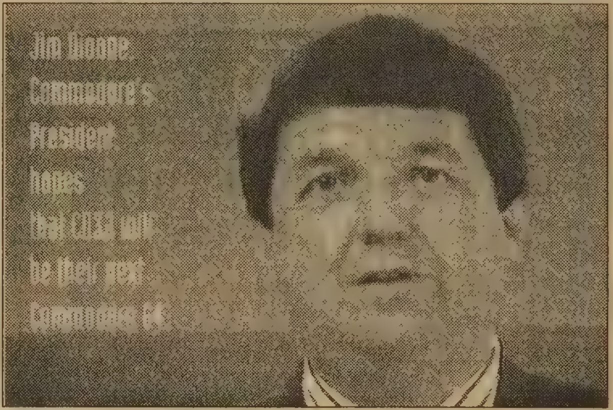
Out of the box, CD32 will play regular audio CDs, CD+G, CD+MIDI, most CDTV titles, and of course CDs made especially for the unit. Although it is capable of playing Kodak PhotoCDs, a licensing agreement is still being worked out. Perhaps more interestingly, QuickTime may also be available on CD32. The hardware is certainly more than up to the task—it's only a question of porting the player software.


Jim Dionne
Commodore's
President
hopes
that CD32 will
be their next
Commodore 64

A reported thirty-five developers are actually producing CD32 titles. By the time of its release, Commodore expects to have fifty-seven titles available—seventy-five by December. Of course, most of these are repackaged versions of existing Amiga titles, but there will be some new CD32-specific titles.

I saw a preview of one, Ocean's Jurassic Park, which included lengthy clips from the movie using Commodore's CDXL technology. With CDXL, data is transferred from a CD directly to display memory, without CPU involvement. The result is impressive partial-screen full-motion video from a CD without hardware decompression.

Commodore's ability to garner such impressive developer support is undoubtedly due at least in part to the very aggressive licensing fee of $3 per unit sold. Other game platforms reportedly require a fee for every unit manufactured. Furthermore, CDs in general are much more economical to make than game cartridges, which can cost from $10–$20 to make. The per-unit manufacturing cost of a CD can be less than a dollar! Also, cartridge manufacturing operations are limited and can take six to eight weeks. CDs can be pressed quickly, and pressing services are becoming commonplace. This minimizes the need for a developer to hold large inventories of product. As a result, CD32 titles are expected to sell for 50%–60% of the price of their cartridge counterparts!

**The CD32 basically amounts to an Amiga 1200 wrapped around a custom double-speed multi-session CD-ROM player.**

Feature-wise, CD32 kills Sega CD. Price-wise, it is about the same and half the projected price of 3DO machines. In fact, Commodore revealed a pricing strategy of keeping this relative price balance. Furthermore, they expect the price for CD32 to fall to $299 by Christmas of 1994!

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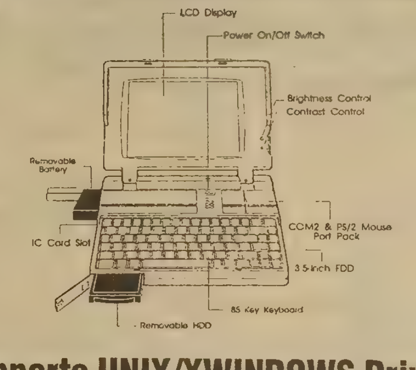

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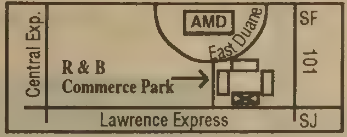

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Production is reportedly at twenty thousand units a week. Even at that rate, Commodore is saying that initially supplies will be short in the US. (Apparently, the product is selling like hotcakes in Europe.) CD32 will be first test-marketed in a few US locations towards the end of October, followed by a national rollout in January at the Consumer Electronics Show.

## VIDEOCD

With an upcoming MPEG plug-in module, CD32 will be able to play VideoCD (formerly Karaoke) discs. This recently adopted standard allows seventy-four minutes' playback of high-quality video and audio from a CD. The list of other companies supporting the format includes such heavy hitters as C-Cube Microsystems, Goldstar, JVC, Matsushita Electric, Philips, Samsung, Sigma Designs, and Sony. VideoCD could very well replace the current 12-inch Laserdisc format, just as CDs have replaced LPs. People will be able to enjoy movies, music videos, CDs, and games, all from the same player! The price for the MPEG module should be $250 or lower. Although the module plugs into the expansion slot, it does have pass-thru capability if you change the backplate.

CD32 will be great for inexpensive kiosks. MPEG animations can even be used in CD32 applications. Commodore hinted that the future may include receiving direct satellite broadcasts and interactive cable applications.

## NOT ANOTHER CDTV

CD32 obviously conjures up memories of ill-fated CDTV, which was, similarly, a reworked Amiga 500 with a CD-ROM. Like the CD32's MPEG card, CDTV was supposed to have full-NTSC color with an add-on card called AVG (based on the Digital Creations' DCTV), which never materialized.

However, Commodore learned a lot from CDTV—they openly admit it was priced too high and was underpowered. Additionally, Commodore finally figured out that what people really want is entertainment. CD-based encyclopedias and dictionaries are nice, but games are what sell this type of product. So, instead of trying to create a totally new market, they are placing CD32 directly into the game console market, specifically against Sega's CD-ROM, and eventually 3DO. Nintendo is not a player yet and it appears that they won't be until 1995, due to their recent alliance with Silicon Graphics.

CD32 represents Commodore's attempt to regenerate its low-end business. Jim Dionne, Commodore's president, hopes that CD32 will be their next Commodore 64, which was a huge success. Moreover, it is hoped that since CD32 has a full implementation of AmigaDOS, success of CD32 could lead to a greater acceptance of and migration to higher-end Amigas.

## 1200/4000 CD

By year end, Commodore hopes to have CD

*continued on page 308*

## RESOURCES:

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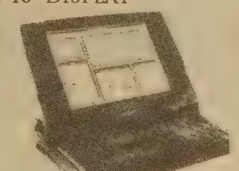

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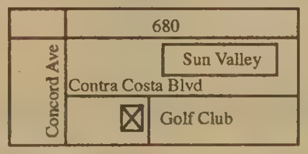

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| ***Novell Lantastic 2 Station Starter Kit*** | ***$299*** |

Including:
- 2 Copies of Novell Lite or LANtastic
- 2 NE 2000 16 bit Ethernet Adaptors
- 2 50 Ohm Cable Terminators
- 1-25 foot cable
- **Novell Additional Users.................$99**
- **Lantastic Additional Users............158**

SUPER SALE

***Ethernet Cards***

| | |
|---|---|
| 16 bit NE2000 | $49 |
| 16 bit NE2000 Twist Pair | 49 |
| 8 Ports Concentrator | $49 |
| 16 Ports Concentrator | 49 |

### VIDEO GRAPHIC CARD

| | |
|---|---|
| Trident 8900C SVGA Card w/1MB | $52 |
| Tseng ET-4000 w/1MB Hi-Color | 69 |
| Genoa 8500 VLB w/1MB | 118 |
| Diamond Speed Star Pro VLB w/1MB | 108 |
| Diamond Stealth 24 w/1MB | 148 |
| Diamond Stealth 24 VLB w/1MB | 153 |
| Diamond Viper VLB 2MB VRAM | 358 |
| Orchid Fahrenheit 1280 Plus w/1MB | 138 |
| Orchid Fahrenheit VLB w/1MB | 138 |
| ATI Graphics Ultra w/Mouse | 159 |
| ATI Graphics Ultra Pro VLB w/2MB | 318 |

### MONITORS

| | |
|---|---|
| Sony CPD 1413 0.25mm dp | $555 |
| Sony CPD 1730 0.25mm dp | 950 |
| Nanao F550i 17" 1280x1024 0.28mm dp | 999 |
| Nanao F550iw 1280x1024 0.28mm dp | 1065 |
| NEC 1431 14" SVGA 0.28dp Low Radiation | .339 |
| NEC 3FGE 15" SVGA 0.28mm dp | 575 |
| NEC 4FGE 15" SVGA 0.28mm dp | 665 |
| NEC 5FGE 17" SVGA 0.28mm dp | 1065 |
| MAG 15F 15" 1280x1024 Low Radiation | 475 |
| MAG 17F 17" 1280x1024 0.26mm dp | 865 |
| Viewsonic 5E Non-Interlaced SVGA 0.28mm dp | 355 |
| Viewsonic 6E 14" Non-Interlaced SVGA 0.28mm dp | 279 |
| Viewsonic 15" Low-Radiation NI SVGA 0.28mm dp | Best Price 465 |
| Viewsonic 17" Low Radiation NI SVGA 0.28mm dp | 1028 |
| ADI 4G 15" 1280x1024 NI SVGA 0.28mm dp | 399 |
| Relisys 15" Flat Screen Non-Interlaced 0.28mm dp | 388 |
| CTX 14" SVGA Non-Interlaced 0.28 mm dp | 268 |
| 14" SVGA 0.28 dp | Best Price 229 |

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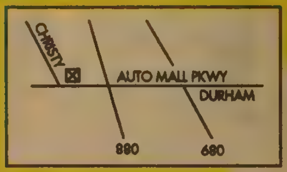

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- SVGA Monitor 1024x768 0.28 dp
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- 2 Serial, 1 Parallel, 1 Game Port
- Mitsumi 101 Enhanced KB
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- 100% Hayes Compatible
- V.32 bis 14,400 bps
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- MNP 5 Data Compression
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- CCITT V.32 bis
- Caller I.D.
- Distinctive Ring
- Free Quicklink II for Windows

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## MONTHLY CD-ROM SPECIALS

Mitsumi CD ROM
w/Controller
350ms/150K Data
Transfer Rate
Photo CD Compatible

**$149**

### Toshiba 3401B

SCSI Interface
200ms/330k Data
Transfer Rate
Photo CD Compatible

**$339**

## CD ROM & SOUND CARD

| | |
|---|---|
| MITSUMI CD-ROM Drive 350ms | $149 |
| MITSUMI CD-ROM W/5 Title CD | 218 |
| TOSHIBA XM-3401 200ms | Best Price 399 |
| Panasonic CR522 CD-ROM 380ms | 169 |
| Panasonic CR562 CD-ROM 320ms/300K | 199 |
| Creative Labs Discovery CD 8 Upgrade Kit | 358 |
| Creative Labs Edutainment CD16 Upgrade Kit | 478 |
| Pro Audio Spectrum 16 | 128 |
| Sound Blaster Pro Deluxe w/CD | 105 |
| Sound Blaster Pro 16 ASP w/CD | 189 |
| Sound Blaster Pro 16 Basic | 135 |
| 80 Watt Stereo Speakers | 79 |

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| | |
|---|---|
| Adventure of Willy Beamish | $18 |
| America Business Phonebook | 18 |
| Arthur's Teacher Trouble | 23 |
| Barney Bear Goes to School | 18 |
| Barney Bear Goes to Space | 18 |
| Barnon's College Guide | 23 |
| Beauty and the Beast | 18 |
| Brain Drain | 18 |
| Carmen San Diego - Deluxe | 23 |
| Chessmaster 3000 MPC | 17 |
| Compton's Multimedia Encyclopedia | 49 |
| Compton's Interactive Encyclopedia | 95 |
| Dictionary/Living World | 23 |
| Dinosaur Adventure | 23 |
| Family Choice | 23 |
| Family Doctor | 23 |
| Family Education Collection | 23 |
| Game Pak II | 33 |
| Kings Quest V | 15 |
| Kodak Photo Access | 23 |
| Lovely Ladies | 35 |
| MacMillan Dictionary for Children | 23 |
| Mantis Experimental Fighter | 18 |
| Microsoft Bookshelf MPC | 29 |
| Microsoft Works for Windows | 29 |
| Mixed Up Mother Goose | 17 |
| Monkey Island - English | 18 |
| Nat'l Geographic Mammals | 23 |
| PC SIG 12 Shareware | 23 |
| Peter and the Wolf | 18 |
| Playing w/Languages - English | 23 |
| Playing w/Languages - French | 23 |
| Playing w/Languages - German | 23 |
| Playing w/Languages - Japanese | 23 |
| Playing w/Languages - Spanish | 23 |
| Pro Phone 1993 | 115 |
| San Diego Zoo/Animals | 23 |
| Seventh Guest - Virgin Games w/2CD | 48 |
| Sleeping Beauty | 18 |
| Stellar Seven | 18 |
| Story Time | 23 |
| STW Grolier's Encyclopedia MPC | 38 |
| US History | 18 |
| Wing Commander | 18 |
| Who Killed Sam Rupert | 18 |

## PRINTERS

| | |
|---|---|
| HP DeskJet 500 | $325 |
| HP DeskJet 500C | 499 |
| HP DeskJet 550C | 599 |
| HP LaserJet 4L | 699 |
| HP LaserJet IIIP | 949 |
| HP LaserJet 4 | 1399 |
| Panasonic KX-P 2123 | 245 |
| Panasonic KX-P 2124 | Best Price! 299 |
| Panasonic KX-P 2624 | 385 |

## ADD-ON CARDS

| | |
|---|---|
| AT I/O (2S/1P/1G) | $15 |
| IDE 2FD/2HD w/(2S/1P/1G) | 15 |
| DTC VESA Local Bus IDE 2FD/2HD, 2S/1P/1G | 89 |
| Future Domain SCSI 2FD/2HD Controller | 58 |
| Adaptec SCSI Adaptor 1542 CK w/Kit | 238 |
| Adaptec SCSI EISA Controller 1742 BK w/Kit | 399 |
| Trackball (8000dpi) | 35 |
| MicroSoft Serial Mouse | 42 |
| MicroSoft Compatible Serial Mouse | 14 |
| PS/2 Compatible Serial Mouse | 18 |
| Logitech Serial Mouse Man | 65 |
| Logitech Bus Mouse Man | 65 |
| Logitech Trackman | 75 |

## BRAND NEW DRIVES

| | |
|---|---|
| TEAC 1.44/1.2MB Floppy Drive | $38/48 |
| Colorado Tape Backup 120MB/250MB | 115/159 |
| Tape Qic-80 3M DC2 120 | 18 |
| Maxtor 130MB 15ms IDE | 169 |
| Western Digital 212MB 13ms IDE | 185 |
| Western Digital 340MB 13ms IDE | 269 |
| Quantum 245MB/12ms (IDE) | 219 |
| Conner 540MB 12ms IDE/SCSI | 495 |
| Quantum 525MB 12ms IDE/SCSI | 568 |
| Conner 1.37GB 10ms SCSI | 968 |
| Quantum 1.2GB 10ms SCSI | 998 |

## MODEMS/FAX

| | |
|---|---|
| Zoltrix 2400 Int. Modem w/9600 Send Fax | $28 |
| Zoltrix 9600/2400 Fax/Modem w/Bit Fax for Windows | 48 |
| 14,400 bps Int. Fax/Modem w/software for Windows | 119 |
| Zoltrix 14,400 bps Ext. Modem | 179 |
| Zyxel 16,800 bps Fax/Modem (external IBM, MAC) | 299 |

## KEYBOARDS

| | |
|---|---|
| 101 Enhanced Keyboard | $15 |
| Keytronic (Quiet) Keyboard | 38 |
| Fujitsu 101 Keyboard | 48 |
| Northgate Omni Key 101/102 | 78 |
| Northgate OmniKey Ultra | 98 |
| Focus 2001/9000 | 38/58 |

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Preview:

# Seybold San Francisco Conference And Exposition

## Moscone Center, San Francisco
## October 20-23, 1993

For established companies and fledgling content providers alike, it's hard to keep up with the latest developments in digital technology and how they relate to the publishing. Since the dawn of the LaserWriter, Seybold Seminars have been a primary information resource for all aspects of digital publishing. This year's conference features hundreds of product exhibits, as well as special professional-level tutorials running October 21–23, and conference sessions on pertinent industry trends and innovations. For registration and other information, contact Seybold at 1-800-433-5200.

### Wednesday, October 20

**9:00am–10:30am**
C1. Opening Session I
- Michael Spindler, President & CEO, Apple Computer, Inc.
- John Warnock, CEO & Chairman, Adobe Systems, Inc.
- Moderator: Jonathan W. Seybold, CEO, Seybold Seminars

**11:00am–12:30pm**
C1. Opening Session II
- Michael Sullivan, Haywood & Sullivan
- Benny Landa, CEO, Indigo, Ltd.
- John Evans, President & CEO, News Corporation, News Electronic Data, Inc.
- Moderator: Jonathan W. Seybold, CEO, Seybold Seminars

**2:00pm–3:30pm**
C1. New Screening Technologies
C2. Nature of Electronic Documents
C3. Overview
C4. Industrial Strength Systems

**4:00pm–5:30pm**
C1. Photo CD Update
C2. Making Sense of Compound Document Architecture
C3. Multimedia for Publishers
C4. Digital Highways

### Thursday, October 21, 1993

**8:30am–10:00am**
C1. Color Management
C2. Electronic Distribution Update
C3. Multimedia for Publishers
C4. Font Technologies
C5. Software for Production Workflow Management
C6. Software for Editorial Workflow Management

**1:00pm–2:00pm**
C1. HiFi Color Discussion
C2. Electronic Distribution: Case Studies I
C3. Multimedia Marketing
C4. Color Printer Technology With David Spencer
C5. Retail/Catalog
C6. Newspaper Editorial Workflow

**2:00pm–3:00pm**
C1. Photo CD Users
C2. Electronic Distribution: Case Studies II
C3. Multimedia Distribution Tutorial
C4. Color Printer Technology with David Spencer
C5. Design/Advertising
C6. Newspaper Color

**3:30pm–4:30pm**
C1. Serious Production Workflow for Color PostScript
C2. Document Management I
C3. Designing for the Screen
C4. Short-Run Color
C5. Business of Commercial Color
C6. Magazine Editorial Workflow

**4:30pm–5:30pm**
C1. Serious Production Workflow for Color PostScript II
C2. Document Management II: Users
C3. Multimedia for Publishers
C4. New Approaches to Color Production
C5. Business of Commercial Color
C6. Magazine Color

**7:30pm–9:00pm**
C1. Design
C2. Corporate Publishing/Electronic Publishing
C3. Newspapers & Magazines
C4. Font Free-for-All
C5. Service Bureaus
C6. Printers
C7. Japanese Perspective on Desktop Color

### Friday, October 22, 1993

**8:30am–10:00am**
C1. Power PC & NT: Platforms for the Future
C2. Extracting Knowledge From Document Archives
C3. Licensing and Intellectual Property
C4. Trapping

**10:30am–12:00pm**
C1. Publishing in the '90s

**2:00pm–3:30pm**
C1. New Businesses & Services
C2. SGML Update
C3. Multimedia for Publishers
C4. PostScript Production

**4:00pm–5:30pm**
C1. Color Discussion
C2. Electronic Document Discussion
C3. Multimedia Discussion
C4. Future of PostScript

# Seybold San Francisco

## Moscone Center • October 21-23 1993

Exhibitor List as of September 30, 1993*

3M - 925
Adobe Systems Inc. - 2225
Advanced Micro Devices - 1631
Advanced PrePress Systems - 1937
AGFA (a Division of Miles, Inc.) - 2201
AISB - 2206
Aldus Corp. - 1701
Aldus Developers Cooperative - 312
Alias Research Inc. - 2025
All Systems Color, Inc. - 2109
AltaMira Software Corp. - 337
Apple Computer Inc. - 1225 & 1241
ArborText Inc. - 909
Archetype, Inc. - 1700
Artbeats - 408
Auto-Graphics, Inc. - 2731
Autologic Inc. - 715
AZTECH NEW MEDIA CORP. - 2545
Bacchus Press - 401
Barco Graphics - 1443
BARCO Inc. -2202
Bellcore - 439
Birmy Graphics - 2001
C4 Network, Inc. - 336
Cactus - 2143
Caere Corp. - 1413
CalComp - 1143
Canon U.S.A. - 1433
Capitaine Color/The Human Software Company - 538
Cat's Pajamas - 403
ColorAge, Inc. - 415
ColorExpert, Inc.- 2743
Color Resource - 528
Color Wise - 246
Compaq Computer Corp. - 2624
Compumation Inc. - 2007
Computer Expressions - 222
Computer Image Technologies - 2832
Conley - 2707
CoOperative Printing Solutions - 2243
Corel Corporation - 541
CPI, Inc. - 2543
Crystal Graphics, Inc. - 1113
DataBase Publishing Software, Inc. - 2107
Data Conversion Laboratory - 2745
Dataproducts Corp. - 1043
DataStream Imaging Systems - 534
DataWare Technologies - 530
DayStar Digital - 2029
Development Technologies, Inc. - 1837
Dewar Information Systems - 3129
Dice America - 2829
Digital Stock, Inc. - 2709
DIGIX Imaging - 2818
DisCopyLabs - 2912
DK & A - 301
Document Network - 1609
D'Pix - 2735
DuPont Printing & Publishing - 901
DynaLab, Inc. - 317
Dynamic Graphics Inc. - 2139
Eastman Kodak Company - 2425
ECRM -1717
Electronic Book Technologies - 2031
Electronics for Imaging - 1913
ElseWare Corporation - 3224
Epson - 2715
Equilibrium Technologies - 237
Exoterica Corp. -2103
FARGO Electronics, Inc. - 524
FaxBack, Inc. - 2906
Ferrari Color - 416
FITS Imaging - 3116
5D Solutions - 2718
FONTS WEST - 2910
Fractal Design Corp. -1207
Frame Technology Corp. - 2125
Fuji Photo Film USA, Inc. - 2213
FWB, Inc. - 3214
GECAP - 2208
General Binding Corp. - 1936
Genstar Rentals - 211
Graphic Communications Association - 2210
Graphic Enterprises of Ohio -443
Graphic Systems Technology - 2711
GRANDE VITESSE SYSTEMS (GVS) - 3201
Gretag Color Control Systems - 2101
Harlequin Ltd. - 2621
Heidelberg - 933
Hoechst Celanese Corp. - 2811
Houghton Mifflin Co. - 2725
Howtek - 725
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Hyphen Inc. - 525
IBEX TECHNOLOGIES, INC. - 2740
Imspace Systems Corporation - 2542
Indigo - 225
InfoAccess - 3126
Information Dimensions - 2719
In Software - 205
Intergraph - 1215
Interleaf - 2539
IPT, Inc. - 2441
Iris Graphics - 501
Island Graphics Corp. - 1401
JEI - 2640
JUST Normlitch, Inc. - 410
JVC Information Products -2635
KanImage - 201
Knowledge Industry Publications - 2716
Konica Imaging USA - 2643
Kurta Corp. - 1107
LaserMaster Corp. - 1407
L.D.R.-733
Leaf Systems, Inc. - 511
Leverage Technologies, Inc. - 2919
Light Source - 1907
Linotype-Hell Company - 1725
Loral Fairchild Imaging Sensors-437
Macworld Magazine - 2915
M&P Computer & Communications - 2537
Magus - 2830
Management Graphics Inc. - 442
Managing Editor Software - 305
Mannesmann Scangraphic - 2411
Media Cybernetics - 2613
MEGA DRIVE - 2113
Metrum, Inc. - 2238
Micronet Technology, Inc. - 1119
Micro Publishing News - 111
Microsoft - 2417
MicroTimes - 3200
Mirus Industries Corp.- 2714
Mitsubishi Int'l Corp. - 3204
Monaco Systems, Inc. - 433
Monotype Inc. - 1501
Monotype Typography - 3139
Morgan Graphic Supply - 217
MountainGate Data Systems, Inc./A Lockheed Company - 1713
Multi-Ad Services Inc. - 701
National Association of Desktop Publishers (NADTP) - 1704
NEC Technologies, Inc. - 1635
NewGen Systems - 2137
NewMedia Magazine - 2805
Nikon Electronic Imaging - 2235
NINE BiTS - 2546
No Hands Software, Inc. - 2443
North American Publishing Co. - 311
North Atlantic Publishing Systems - 1710
OCE-Bruning - 343
OnLine Design - 3134
ONYX Graphics Corp. - 2710
Optronics (An Intergraph Division) - 1316
Orbotech - 741
Pacific Data Group - 2641
Pacific Rim Connections, Inc. - 139
Pantone Inc. - 2801
Peachpit Press, Inc. - 2925
PennWell Publishing - 1714
Personal Library Software - 2642
PHASE ONE - 2737
Phoenix Technologies - 1901
PhotoDisc, Inc. - 2846
Pipeline Associates Inc. - 2343
Pixar - 242
PixelCraft - 1110
PLANET VISION - 2815
PLI - 1743
Prepress Links /American Printer - 412
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Publish - 2437
Purup Prepress America - 1737
QMS - 707
Quantel - 1605
Quark Inc. - 1419 & 1619
Quintar Company - 1732
Radius Inc. - 2401
Radius/SF Examiner - 108
RAMPAGE SYSTEMS, INC. - 315
Raster Graphics Inc. - 207
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Ray Dream - 1643
Relisys-1745
Rip-it Computers - 232
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ScanView A/S - 1137
Scitex America - 517
Screen U.S.A. - 1233
SECMA International - 1843
Seiko Instruments - 1543
Seybold Publications - 2843
Silicon Graphics - 2601
Sixty Eight Thousand - 425
SoftMaker - 414
SoftQuad, Inc. - 2212
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Ultre* (a Division of Linotype-Hell Company) - 1307
UMAX Technologies, Inc. - 402
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URW - 2927
Visual Business Systems, Inc. - 2825
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Wasatch Computer Technology - 215
Westinghouse Electronic - 429
WideCom Group Inc., The - 435
Windows Prepublishing Assoc.- 2742
Word Perfect Corporation - 2117
Wright Technologies - 319
Xante Corporation - 2814
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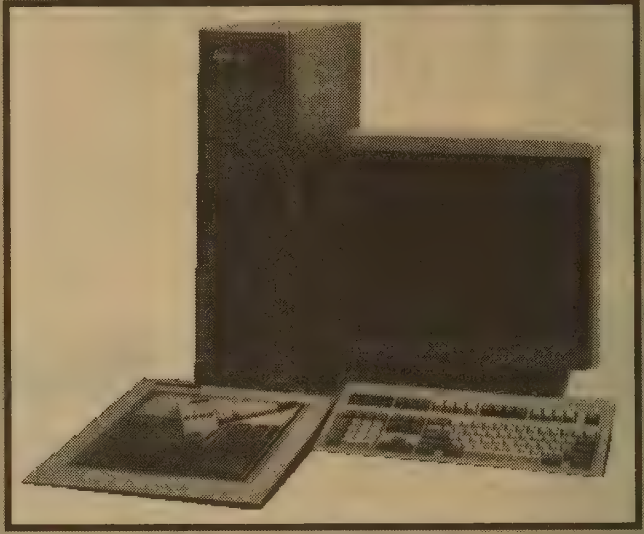
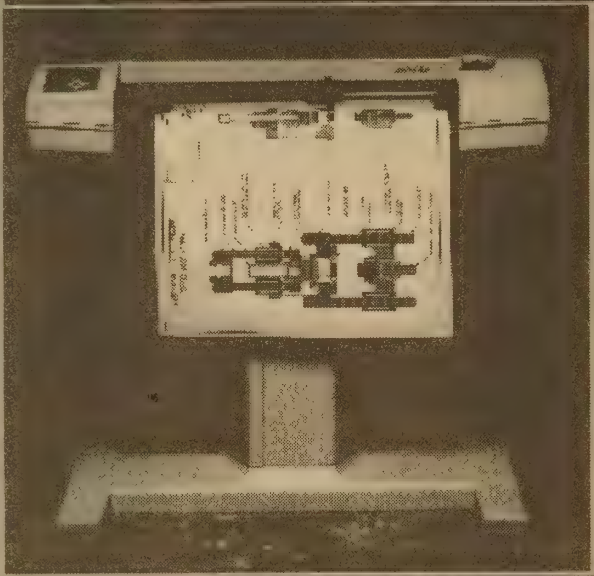
* 80486 DX2/66 CPU(Ugradable to **P24T** CPU), 256KB Cache
* **16MB** Memory(32MB Max.), 1.2 & 1.4MB Floppy drive
* **340MB** IDE Hard drive(13ms), **IDE VL-Bus** Controller
* Full vertical case, Dual cooling Fan, Heat-Sink
* **ATI GraphicsUlra Pro VL-Bus** Board(1280X1024, 256 Clolor)
* **17"** Flat Screen Color Monitor(**1280X1024**), Calcomp **12X12 Digitizer**
* 101 Keyboard, 2 serial / 1 Parallel port, MS DOS 6.0
* **Free S/W & H/W Integration**

$3,995





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* Intel 80486DX/33MHz CPU. **8MB** memory, 256KB Cache memory
* TEAC 1.2MB & 1.44MB FDD, **245MB** IDE HDD, Mouse
* 2S / 1P ports, 101 Keyboard, Desktop case, DOS 6.0, Windows 3.1
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* **Large size digitizer (up to 36X44)**

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## True Color System

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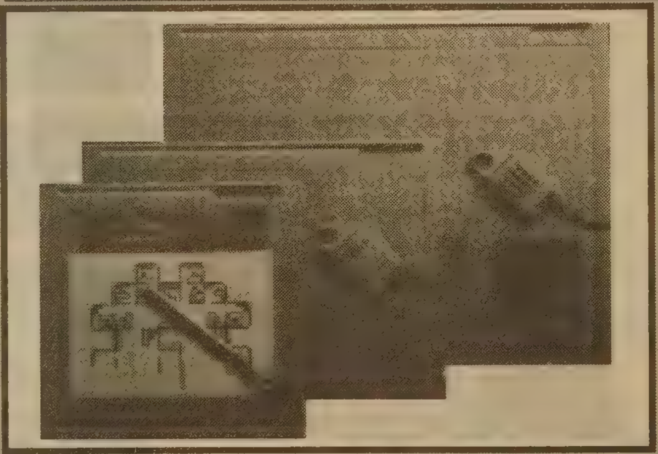
* **17" Trinitron tube** color monitor, MS Windows 3.1
* Mid. vertical case, 250W P.S. 2 serial / 1 parallel port
* **Free S/W & H/W Integration**

$6,595



## Interactive Multimedia

IBM

* **IBM ValuePoint 486/33 System**. 256KB Cache
* **8MB** RAM(32MB Max.). **240MB** IDE Hard drive. 1.44MB Floppy Drive
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* Built-in VGA board(1024X768), **Toshiba CD ROM(200ms, 380KB/S)**
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* **Creative Lab Video SPIGOT** continuous frame capture board
* includes MS Windows 3.1, Video for Windows, Multimedia ToolBook, -MediaBlitz, Asymetrix Make your point, MS DOS 6.0
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- * ATVista 1M / 2M / 4M
- * Bravado
- * TIPS
- * Truevision 1024 / 32

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### MG3D / MG3D Ultra

MG 3D
- * 1024 X 768, 4096 Colors, ISA
- * 3D Dynaview for AutoCAD

MG 3D Ultra
- * 1280 X 1024, 16 million Colors, EISA
- * 3D Dynaview for AutoCAD

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### ScanMaker

ScanMaker II
- * Flatbed 24 bit color scanner
- * 1200 dpi resolution $895

ScanMaker 35t
- * 24 bit 35mm, film scanner
- * 3656dpi,256 gray scale,PhotoStar S/W

$ 1,495

**Media Vision**

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True Color at 1280X1024
- * Workstation Performace
- * Hi refresh rate(1280X1024)
- * 4MB VRAM Standard
- * Built-in VGA

$795

**HOUSTON INSTRUMENT®**
A Summagraphics Company

### Ink Jet Plotter (V50)

20X faster
- * 360X360 dpi A-C size, Inkjet Plotter
- * Up to 20 time faster than Pen Plotter
- * HPGL/2, HPGL, Emulates IBM XL24
- * 1MB Buffer, 2M & 4M(Optional)
- * Single sheet or rollfeed (Option)

$1,595

**FARGO**

### Primera Color Printer

Thermal Wax Printer
- * 4X faster than Inkjet
- * Presentations graphics, transparencies
- * Windows 3.1 Driver
- * Very low cost to operate
- * Deliver rich and vibrant Images
- * **Photorealistic Upgrade**($249)

$895

**intel®**

### Smart Video Recoder

Video Capture Board
- * Captures up to 30 frames per second
- * Intel i750 Video Processor built in
- * 2X faster than other Capture Board
- * Capture, Compress, Store in one step
- * Asymetrix MediaBlitz and Compel S/W
- * MS Video for Windows, Intel Software

$475

### MONITORS

| | |
|---|---|
| * 37" Mitsubishi Scan/Pro | $ Call |
| * 33" Mitsubishi Diamond Scan | $ Call |
| * 21" NEC 6FG | $2,495 |
| * 21" IDEK 5421A | $2,295 |
| * 21" Hitachi Accuview PS21 | $2,195 |
| * 21" NSA SuperScan Pro21 | $2,095 |
| * 21" Nanao F750i | $2,195 |
| * 20" Ikegami CT20A(Trinitron) | $1,995 |
| * 20" Ikegami CN20A | $1,495 |
| * 20" Seiko 2070LR | $2,195 |
| * 20" Nanao T660i | $2,495 |
| * 20" SONY 2038 | $2,295 |
| * 20" Mitsubishi DiamondPro20 | $2,195 |
| * 20" NSA SuperScan 20S | $1,395 |
| * 20" Sampo AlphaScan | $1,095 |
| * 17" Mag | $1,095 |
| * 17" NEC 5FG | $1,495 |
| * 17" Nanao T560i | $1,895 |
| * 17" Nanao F550iw | $1,145 |
| * 17" Mitsubishi Diamond Pro17 | $1,095 |
| * 17" Sony 1730S | $1,095 |
| * 17" NSA SuperScan17 | $ 995 |
| * 14" Sampo AlphaScan | $ 395 |

### GRAPHICS CARD

| | |
|---|---|
| * RASTEREX Tracer 1280 | $2,695 |
| * SPEA 1280 | $1,695 |
| * #9GXI TC L29 | $1,495 |
| * #9GXI L23 / 25 | $1,095 /1,395 |
| * #9GXE L11 / 12 | $ 395 / 445 |
| * Artist XJS 12-16 | $2,195 |
| * Artist XJ1000 | $1,195 |
| * Artist Winsprint 1000 | $1,135 |
| * Hercules Graphite | $ 345 |
| * Metheus 1104+16/256 | $995/1,095 |
| * Metheus Premire 1M/2M | $375/575 |
| * Matrox 3D Ultra | $ Call |
| * Matrox MGA 2M/3M | $695/995 |
| * Matrox Impression AT | $1,395 |
| * MediaVision ProGraphics | $ 845 |
| * Vermont X/Series 16/256 | $1595/1795 |
| * Vermont Cobra Elite | $ 995 |
| * Super Mac Spectrum 24 | $ 945 |
| * Diamond VIPER VLB 2MB | $ 445 |
| * ATI Graphics Ultra Pro 2MB | $ 450 |
| * ATI Graphics Ultra + 2MB | $ 350 |
| * TrueVision 1024/32 | $1,595 |
| * TrueVision 1024XP/24 | $1,295 |

### PLOTTERS

| | |
|---|---|
| * Calcomp 2036 (A-E) | $4,095 |
| * Calcomp 2024 (A-D) | $3,195 |
| * HP DesignJet (A-E) 600 dpi | $6,595 |
| * HP DesignJet (A-D) 600 dpi | $5,495 |
| * HP DesignJet 650C(A-D) | $7,095 |
| * HP DesignJet 650C (A-E) | $8,495 |
| * HP 7599B (A-E) | $7,695 |
| * HP 7596C (A-E) | $6,695 |
| * HP 7595C (A-E) | $5,295 |
| * HP DraftPro + (A-E) | $4,195 |
| * HP DraftPro + (A-D) | $3,195 |
| * HP 7475A (A-B) | $1,495 |
| * H.I.DMP 162R (A-E) | $4,385 |
| * H.I. HIPLOT 7100 (A-D) | $2,795 |
| * H.I. HIPLOT 7200 (A-E) | $3,495 |
| * H.I. JetPro (A-C) V 50 | $1,595 |
| * H.I. JetPro (A-C) V100 | $2,495 |
| * Enter SP600 (A-B) | $ 695 |
| * Mutoh XP-511 (A-D) | $ Call |
| * Roland GRX350 (A-D) | $3,495 |
| * JDL 850XP-1M (A-C) | $2,895 |
| * AMT Accel244 (A-C) | $ 895 |
| * PacificData InkJet (A-C) | $1,195 |

### DIGITIZERS

| | |
|---|---|
| * Calcomp 44 X 60 | $1,895 |
| * Calcomp 36 X 48 | $1,695 |
| * Calcomp 18 X 24 | $1,295 |
| * Calcomp 12 X 18 | $ 645 |
| * Calcomp 12 X 12 | $ 289 |
| * Calcomp 6 X 9(P.Sen) | $ 350 |
| * Summa S. MG2 36 X 48 | $2,995 |
| * Summa S. MG2 24 X 36 | $2,595 |
| * Summa S. MG2 17 X 24 | $2,195 |
| * Summa S. III 12 X 18 | $ 595 |
| * Summa S. III 12 X 12 | $ 315 |
| * Kurta XGT 12X12 | $ 645 |
| * Kurta IS/ONE 12X12 | $ 345 |
| * Kurta IS/ONE 12X17 | $ 595 |
| * WACOM 6X9(P.Sen) | $ 545 |
| * WACOM 12 X 12(P.Sen) | $ 695 |
| * WACOM 12X18 | $1,195 |

### COLOR PRINTERS

| | |
|---|---|
| * Seiko ColorPoint PSX | $4,995 |
| * Seiko ColorPoint PSE | $2,595 |
| * Mitsubishi S3410 (DyeSub) | $6,995 |
| * Fargo Primera(Thermal Wax) | $ 895 |

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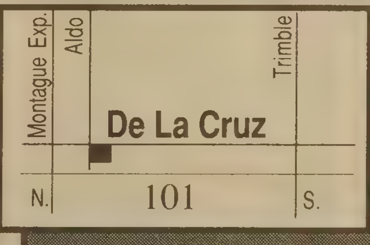

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**NANAO®** **CalComp** A Lockheed Company **RASTEREX** **HEWLETT PACKARD**

# Getting A 3-D Look From 2-D Animation Tools

## Selecting The Right Animation Tools For Getting The Best Results As Effectively And Economically As Possible

BY ERNEST R. TELLO

There's nothing quite like high-quality 3-D computer animation. But 3-D tools are not always worth the price you must pay, either in time or resources. 3-D tools have helped us better understand 2-D tools and what they are unique at doing. And luckily, some types of 3-D effects do not necessarily require using detailed 3-D models. There are a variety of ways you can get a "3-D look" using 2-D animation and graphics tools, either separately or in conjunction with 3-D tools. Few if any of the techniques to be discussed are mutually exclusive. They can be used together, usually for increasing the 3-D look.

Because what we see every day in the real world is 3-D, it doesn't take much to suggest to users that what they're seeing is a three-dimensional scene. And we should not forget that 3-D animation is being rendered and projected onto the same screen as our work in 2-D. Rather than hitting a viewer over the head with three- dimensionality, it is often possible to achieve the same impact suggesting three- dimensionality. What are some of the ways this is done?

### USING PERSPECTIVE

The use of perspective within 2-D graphics can achieve greatly varying degrees of simulated 3-D. There are some standard tricks for perspective effects that can make everything a little easier for the animator.

Using a loop of moving telegraph poles, from tiny ones near a vanishing point to large ones on either side, is a common effect to give the illusion of moving into or out of the picture. Once one cycle is done, the same background sequence can be looped for as long as needed. This technique can be applied to any scene where there is a constant uniform object that can appear to vanish in the distance. And there almost always is something. If there are no telegraph poles, or row of buildings or trees, there is usually a road that vanishes with some milestones that can get larger as they approach or smaller as they recede.

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# HIGH QUALITY SYSTEMS AT AFFORDABLE PRICES!

## SYSPER
### MULTIMEDIA SYSTEM

System Includes:
- Sysper 486 w/128K Cache
- 4 MB RAM
- 170 MB IDE Hard Disk
- 1.2 MB and 1.44 MB Hard Disk
- IDE Controller 2FD/2HD
- 14" SVGA Monitor .28 NI
- Local Bus SVGA Card
- 2S/1P/1G Ports
- Mini Tower Case
- 101 Enhanced Keyboard
- Serial Mouse
- DOS & Windows
- CD-ROM
- Encyclopedia CD
- Sound Blaster Pro Deluxe
- Speakers

**486SX-33 .. $1435**
**486DX-33 .. $1565**
**486DX2-50 .. $1595**
**486DX2-66 .. $1775**

## SYSPER
### PENTIUM 60/66

System Includes:
- 256K Cache
- 16 MB RAM
- 1.2 MB and 1.44 MB FDD
- 340 MB IDE Hard Disk
- VL-BUS IDE Controller 2FD/2HD
- 15" SVGA Flat Screen Monitor .28 NI
- Genoa VL-BUS Card w/1 MB
- 2S/1P/1G Ports
- Medium Tower Case
- 101 Enhanced Keyboard

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**586DX-60 ...... CALL**
**586DX-66 ...... CALL**

## AST®
### 386/486

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**AST BRAVOS**
**AST® PREMMIAS**

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**Carry-In Warranty**

## NOTEBOOKS

**AST POWEREXEC**
**NEC VERSA**
**TOSHIBA**

**BEST PRICE**

## GENOA
### 486 VESA LOCAL BUS

System Includes:
- Genoa 486 Motherboard w/ Pentium Overdrive Socket
- 32-Bit Local Bus Genoa Video Card 16 Million Color
- 32-Bit VL-Bus IDE Controller
- SVGA Monitor .28 dot
- 128K Cache on Board to 256K
- 4 MB RAM Exp to 32 MB
- 1.44 MB FDD
- 170 MB Hard Disk/64K Cache
- 1 Parallel/2 Serial/1 Game Ports
- 101 Key Keyboard
- 200 Watt Power Supply
- Baby AT or Mini Tower Case
- 2 YEAR WARRANTY ON GENOA MOTHERBOARD AND VIDEO CARD

**170 MB HARD DISK**

**486DX-33 . $1225**
**486DX-50 .. $1375**
**486DX2-66 .. $1425**

## SYSPER 486
### VESA LOCAL BUS

Systems Include:
- 4 MB RAM on Board
- 1.44 MB FDD
- 170 MB IDE Hard Disk
- 2FD/2HD IDE Controller
- 16-Bit SVGA w/512K
- 14" 1024x768 Super VGA Monitor
- 1 Parallel/2 Serial/1 Game Ports
- Desktop Baby or Mini-Tower Case
- Clock/Calendar w/Battery Back-Up
- 101 Keyboard

**170 MB HARD DISK**

**486SX-25 ...... $885**
**486DX-33 .... $1035**
**486DX2-50 .. $1110**
**486DX2-66 .. $1245**

## MOTHERBOARDS

| | |
|---|---|
| Micronics | CALL |
| Nice | CALL |
| Delco | CALL |
| AMI | CALL |
| Genoa | CALL |
| Others | CALL |

## FLOPPY DRIVES

**TEAC**

| | |
|---|---|
| 1.2 MB | $49 |
| 1.44 MB | 40 |
| 1.2/1.44 MB | 120 |

## HARD DRIVES

**CONNER**

**IDE**

| | |
|---|---|
| 170 MB | $167 |
| 200 MB | 195 |
| 250 MB | 210 |
| 540 MB | 545 |

**QUANTUM**

**IDE**

| | |
|---|---|
| 170 MB | $175 |
| 240 MB | 215 |

**SCSI**

| | |
|---|---|
| 240 MB | $235 |
| 525 MB | 555 |
| 700 MB | 755 |
| 1.0 GB | 875 |
| 1.2 GB | 945 |
| 1.8 GB | CALL |

**MAXTOR**

**IDE**

| | |
|---|---|
| 245 MB | $215 |
| 340 MB | 285 |
| 540 MB | 710 |

**SCSI**

| | |
|---|---|
| 245 MB | $235 |
| 345 MB | 345 |
| 540 MB | 710 |
| 1.0 GB | CALL |
| 1.2 GB | 1195 |
| 1.7 GB | CALL |

**FUJITSU**

**IDE**

| | |
|---|---|
| 425 MB | $475 |
| 520 MB | 575 |

**SCSI**

| | |
|---|---|
| 520 MB | $575 |
| 1.0 GB | 935 |
| 1.7 GB | CALL |
| 2.0 GB | CALL |

**MICROPOLIS**

**IDE**

| | |
|---|---|
| 1.0 GB | $965 |
| 1.7 GB | 1475 |

**SCSI**

| | |
|---|---|
| 670 MB | $725 |
| 1.2 GB | 955 |
| 1.7 GB | 1485 |
| 2.1 GB | 1945 |
| 3.1 GB | 2425 |

**TOSHIBA**

**SCSI**

| | |
|---|---|
| 877 MB | CALL |
| 1.0 GB | 825 |
| 1.2 GB | 895 |

## CONTROLLERS

**ADAPTEC**

**SCSI**

| | |
|---|---|
| 1522 SCSI 2/16 | $75 |
| 1542C SCSI 2/16 | 185 |
| 1542CK SCSI 2 w/Kit | 245 |
| 1742C Fast/32 SCSI 2 | 325 |
| 1742CK SCSI 2 w/Kit | 395 |
| 2742TK SCSI 2 w/Kit | 365 |

**BUSLOGIC**

**SCSI**

| | |
|---|---|
| BT542 SCSI 2 | $179 |
| BT545 VLB SCSI 2 | 195 |
| BT545KT Fast SCSI | 225 |
| BT742KT SCSI 2/32 | 295 |
| BT747AK SCSI w/Kit | 325 |

**ULTRASTOR**

**SCSI**

| | |
|---|---|
| 14F FD/HD 10MB/S | CALL |
| 24F EISA/SCSI | CALL |
| 34F VLB | 255 |

**STANDARD**

**IDE**

| | |
|---|---|
| S1020 2F/2H Hw/IO | $16 |
| S1030 2F/2H Rw/IO | 20 |
| TY1050 2F/2H VL/IO | 40 |

**PROMISE**

**IDE**

| | |
|---|---|
| DC100 IDE Caching | CALL |
| DC200 IDE Caching | 110 |
| DC2030 SCSI Cache | 175 |
| DC3030 EISA IDE/C | CALL |
| DC3040 EISA SCSI/C | CALL |
| DC4000 VLB IDE | CALL |
| DC4030 VLB 4F2H | 140 |

## REMOVABLE DRIVES

**SYQUEST**

| | |
|---|---|
| SQ555 44 MB SCSI Int | $232 |
| SQ5110C 88 MB SCSI Int | 295 |
| SQ555 44 MB SCSI Ext | 310 |
| SQ5110 88 MB SCSI Ext | 395 |

**IOMEGA**

| | |
|---|---|
| 21 MB Flopitcal Insider | CALL |
| 21 MB Flopitcal Ext | CALL |

**BERNOULI**

| | |
|---|---|
| PC Pwr 90 | CALL |
| PC Pwr 90 Pro | CALL |
| Transport 90 Pro | CALL |
| Transport 150 Pro | CALL |
| Insider 90 Pro | CALL |
| PC Pwrd Mltidisk 150 | CALL |

## CARTRIDGES

| | |
|---|---|
| 44 MB Cartridge | $65 |
| 88 MB Cartridge | 95 |

## OPTICAL DRIVES

| | |
|---|---|
| LF-5014 WORM Int | $2025 |
| LF-5010 WORM Ext | 2225 |
| LF-3004 128MB REwrite | 875 |
| LF-7014A Multifunct Int | 2325 |
| LF-7010 Multifunct Ext | 2645 |

## TAPE BACK-UP

**ARCHIVE SCSI**

| | |
|---|---|
| 2150 250 MB | $350 |
| 2525 525 MB | 585 |
| 2750 1.3 GB | 795 |
| 2800 2.0 GB | 895 |

**DAT 4MM INT**

| | |
|---|---|
| 4320 2.0 GB | $975 |
| 4324 4.0 GB | 1175 |
| 4524 4-8 GB | 1195 |

**WANGDAT**

**SCSI INT**

| | |
|---|---|
| 3100 2.0 GB | $975 |
| 3200 4-8 GB | 1175 |

## MONITORS

| | |
|---|---|
| 14" SVGA .39 | $195 |
| 14" SVGA .28 | 225 |
| 14" SVGA .28 NI | 245 |

**KFC**

| | |
|---|---|
| 15" .28 NI | $425 |
| 17" .26 NI | CALL |
| 17" .26 NI | 745 |

**VIEWSONIC**

| | |
|---|---|
| 6E 14" .28 NI | $280 |
| 15 15" .28 NI | 495 |
| 7 17" .28 NI | 875 |
| 17 17" .28 NI | 1025 |
| 8 20" .28 NI | CALL |
| 20 20" .28 NI | 1695 |

**SAMSUNG**

| | |
|---|---|
| 14" Syncmaster 3 | $265 |
| 14" Syncmaster 3n | 295 |
| 15" Syncmaster 15C | 460 |
| **ADI** | **CALL** |

**MAG INNOVISION**

| | |
|---|---|
| LX1564 15" | $435 |
| MX15F 15 | 520 |
| MX17F 17" | 925 |

**NANAO**

| | |
|---|---|
| F340iW 15" | CALL |
| F550iW 17" | 1050 |
| T560i 17" | 1725 |
| F560iW 17" | 1345 |
| T660i 20" | 2395 |
| F750i 21" | 1975 |
| F760iW 21" | 2075 |

**SONY**

| | |
|---|---|
| 1304S 14" .25 | CALL |
| 1430 14" .25 | 575 |
| 1604S 17" .25 | CALL |
| 1730 17" .25 | 995 |

**NISSEO SANGYO AMERICA (HITACHI)**

| | |
|---|---|
| CM1584MU 17" | CALL |
| CM2085MU20" | 1275 |
| CM2095 20" | 1325 |
| CM2187MU 21" | 1975 |
| CM2187XL 21" | 2245 |

**MITSUBISHI**

| | |
|---|---|
| HL6955SETK 20" Pro Scan | CALL |
| HL7955SFK 20" Pro | CALL |
| HC3505SK26M 26" Pro | CALL |
| HJ6505SK 26H 26" Pro | CALL |

## VIDEO CARDS

| | |
|---|---|
| T9000 Trident 512K | $38 |
| T8900 Trident 1 MB | 53 |
| ET4000VL ET4000VLB | 85 |
| 8500VLB Genoa VLB | 99 |
| F1280VL Orchid F1280V | 139 |
| P9000VL Orchid P9000 | CALL |

**DIAMOND**

| | |
|---|---|
| S. Str Pro 1 MB 24 Bit | $130 |
| S. Str Pro VL 1 MB | 130 |
| Stl 24 1MB ISA 24B | 145 |
| Stl 24VL 1MB VL | 149 |
| Stl Pro 2MB V ISA | CALL |
| Stl ProVL 2MB/V VL | 325 |
| Viper VL 2MB VL/V | 365 |

**HERCULES**

| | |
|---|---|
| HG210 Graphite 1MB V | $215 |
| HG510 Graphite Pro | 255 |
| HG720 Graphite VL Pro/2 | 425 |
| C431 Chrome 3V/1D | 945 |
| C631 Chrome 3V/1D | 1225 |
| XP610 SupStation 1V | 695 |
| XP711 SupStation 1V/1D | 995 |

**MATROX**

| | |
|---|---|
| Hiper+CAD 1MBV | $435 |
| MG108 WDI 1MBV | 695 |
| M128 WDI 2MB V | 1075 |
| MG3D XD3 ASIC 5MB V | 875 |
| IMP 1024 S3911 7MB V | 775 |
| MGA ULT/2/A 1MB V | 675 |
| MGA ULT/1/A 1MB V | 475 |
| MGA IMP/3Z/A 2MB V | 1195 |
| MGA ULT/2/V | 695 |
| MA IMP/3/V 3MB V/VL | 975 |

**METHEUS**

| | |
|---|---|
| 1104 Plus | $865 |
| 1104 Plus 16Hz | 975 |
| UGA 1104 | 695 |
| UGA 1228 60 Hz | 1675 |
| UGA 1224Hz 74Hz | 1375 |

**NUMBER NINE**

| | |
|---|---|
| 9GXi Lite20 TI34020 | $595 |
| 9GXi Lite21 TI34020 | 775 |
| 9GXi Lite23 TI34020 | 1075 |
| 9GXi Lite25 TI34020 | 1525 |
| 9GXiTC29 TI134020 | 1625 |
| 9GXi1600 TI34020 | 1625 |
| 9GXi 27 TI34020 | 1625 |

**ATI**

| | |
|---|---|
| Gupro 2MB | $310 |
| Gupro VL | 310 |

## CASES

| | |
|---|---|
| Mini Tower 200W | $49 |
| Mini Tower 200W (Sup) | 65 |
| Baby AT 200W | 55 |
| Mini Tower 230W (Sup) | 68 |
| Med Tower 230W (Sup) | 75 |
| Full Tower 250W (Sup) | 95 |

## CD-ROMS

| | |
|---|---|
| Mitsumi w/Cntrller | $175 |
| Sony 31A w/Cntroller | 189 |
| Sony 561 SCSI | 399 |
| Panasonic CR522 | 209 |
| Panasonic CR562 & Cntroller | 269 |
| Panasonic CR532 SCSI | 349 |
| NEC CDR84-1 Int | 440 |
| NEC CDR74-1 Ext | 580 |
| Toshiba XM3401B Int | 385 |
| Toshiba XM3401B Ext | 485 |
| Texel DM3024 Int | 345 |
| Texel DM5024 Ext | 445 |
| Sound Blaster Pro Delux | 115 |
| Sound Blaster 16 ASP | 199 |
| Pro Audio Spectrum 16 | 155 |
| Pro Audio Studio 16 | 205 |
| Sigma Designs | CALL |
| Turtle Beach | CALL |
| Edutainment CD 16 Kit | 495 |
| Fusion CD 16 Kit | 485 |
| Fusion Doubl CD 16 | 595 |
| Pro 16 Multimedia Kit | 855 |

## DIGITIZERS

**CALCOMP**

| | |
|---|---|
| 12x12 | $285 |
| 12x18 | 575 |
| 18x24 | 1175 |
| 24x36 | 1345 |
| 30x36 | 1195 |

**KURTA**

**XLP**

| | |
|---|---|
| XLP 4BC 12x12 | $255 |
| XLP 4BC 12x18 | 545 |
| XLP 16BC 12x18 | 545 |

**IS/ONE**

| | |
|---|---|
| 8511/4BC 8.5x11 | $325 |
| 1212C 12x12 | 295 |
| 1212C 12x12 | 325 |
| 1212/4BC 12x12 | 325 |
| 1217C 12x17 | 495 |
| 1217/4BC 12x17 | 495 |
| XLC2436-5 24x36 | CALL |
| XLC3648 38x48 | CALL |

## PLOTTERS

| | |
|---|---|
| DMP-52 C-D Size | $1925 |
| DMP-61 A-D Size | 2075 |
| DMP-62 A-Size | 2775 |
| DMP-162 E-Size | 4595 |
| HiPilot 7100 A-D | 2725 |
| HiPilot 7200 A-E | 3475 |
| JetProV50 Inkjet A-C | 1475 |

## SCANNERS

**MUSTEK**

| | |
|---|---|
| ScanMagic 256 400 | $120 |
| ScanMagic Color 400 | 240 |
| GrayArtist 256 400 | 165 |
| PriScan 105 400 | 175 |
| ColorArtist Pro 800 | 375 |
| MFS6000 Flatbed | 825 |

**MICROTEK**

| | |
|---|---|
| ScanmakerII 600dpi | $875 |
| ScanmakerXE 600dpi | 1125 |
| Scanmaker 1200 | 1250 |

**LOGITECH**

| | |
|---|---|
| Dexxa w/Catchword | $99 |
| Scanman 256 | 175 |
| Scanman Omnipage | 225 |
| Scanman 32 | 120 |
| Scanman Color | 445 |
| Scanman Omnipage | 475 |

## NETWORK CARDS

**3 COM**

| | |
|---|---|
| 3C503-16 II/16 | $150 |
| 3C503-16-TP II/16 TP | 165 |
| 3C503B-TP II TP | 225 |
| 3C503 II | 190 |
| 3C507 16 | 285 |
| 3C507 TP 16 TP | 310 |
| 3C509 Combo III/16 Bit | 135 |
| 3C509-TP III TP | 125 |
| 3C579 III EISA | 225 |
| 3C579 III EISA | 225 |
| 3C579-TP III EISA TP | 225 |

**INTEL**

| | |
|---|---|
| LA8120 16TP | $105 |
| LA8215 32 ENET | 425 |
| LA8130A Token Express ISA/16S | 425 |

**IBM TOKEN RING**

| | |
|---|---|
| Adapter II Short | $295 |
| Adapter 16/4 8-Bit | 495 |

**ARTISOFT**

| | |
|---|---|
| AE-2 Adapter ENET 8/16 | $199 |
| AE-2 V5.0 Starter Kit Win | 545 |

**THOMAS CONRAD**

| | |
|---|---|
| TC5045-2 ENET 16 | $205 |
| TC4035 TR 16 Bit 4MBS | 295 |
| TC4045 TR 16 Bit 16MBS | 335 |

**XIRCOM**

| | |
|---|---|
| ET16BU Ext Token Ring Apdt | $595 |
| EE16BU Ext ENET Adpt | 395 |
| PA2-02B6 Int Pocket Arcnet | 250 |
| PA2-02BT Int Pocket TP | 250 |
| PT2-16B3 Pocket Token Ring | 545 |
| PPX-03 Parallel Port Multiplexor | 85 |

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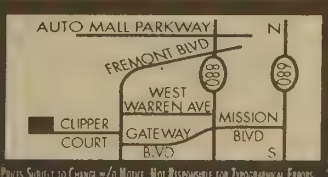

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## MULTIPLE LAYERS

This is the old animation device, perfected by the Disney studio, updated and applied to desktop animation. You can achieve an appearance of three-dimensionality by using separate, individual planes of 2-D animation. With animation tools that allow you to composite separate animations onto one another ad infinitum, like Autodesk's Animator Pro, this technique is easy. All you do is develop the various planes as separate animations, and, when they're completed, composite them together for the final cut. Using separate planes for the movement of different characters also makes it easier to concentrate on one character's movement at a time without worrying about mucking up the other movements and imagery, and it allows the separate animation sequences to be reused in different ways.

**In today's world of animation, 3-D and 2-D animation tools need be used together to get the best results with the least amount of time and resources.**

Let's take a simple example of this type of approach. Using a 2-D animation tool, we create four animations, each of which serves as one plane of a four-plane animation. On the bottom plane is a background scene consisting of buildings, sky, trees, mountains, etc. On one of the other animation planes, the movement of a main actor is shown, a woman who is hiding and running. On another is a robber who is pursuing her, trying to see where she has gone, looking for her or signs of where she has been. Finally, there is a plane for a reaction character, a man who sees the robber's suspicious behavior and follows him to see what he is up to. All of the characters' movements are animated on a black, transparent background so that the background and characters on levels under theirs will appear beneath them and be covered by them. And their size will change when they move in or out of the implied third dimension.

## SIZE ANIMATION

Size often tells us whether an object is moving closer or farther away from us. Combining size transformations with layering effects often produces very good results. Let's suppose your goal is to have a character begin in the foreground and move continuously deeper into the scene toward the vanishing point, such as a slalom skier passing in front of flag markers and then behind them. This can be done with a 2-D animation tool that supports compositing. The trick here is to divide the array of flag markers both in time and by layers. Each flag marker is originally a stationary animation on its own layer, and is divided into two segments, one for when the skier is in front, and the other for when the skier is behind it. The first segment is composited as an underlay of the skier up to the frame prior to when the skier passes behind it. The second segment is composited from that frame on as an overlay. And this is done repeatedly for each flag marker. Since the respective underlays and overlays use the same identical graphic image of the flag marker, it is impossible to tell that two separate sequences have been patched together. The skier really appears to be moving progressively into the background of the scene through the gradual size change and passage of each flag marker first in front and then behind the skier.

## OPTICAL EFFECTS

Optical effects can give the appearance of projecting an image onto a surface that is off to an angle so that even though the image itself is 2-D, a third dimension is implied. We view these images as if they are projected onto something that does not appear to be facing us directly. Some objects are inherently two-dimensional, such as pieces of paper, mirrors, screens, etc. Rather than being a problem when

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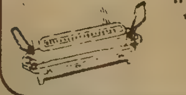

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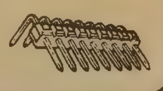

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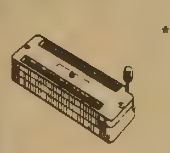
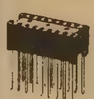

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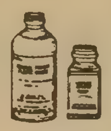

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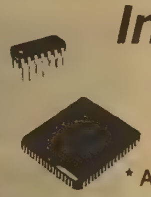

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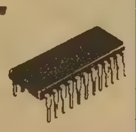

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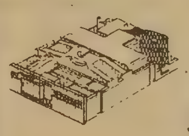

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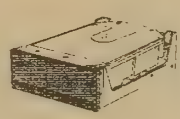

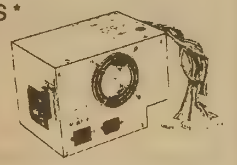

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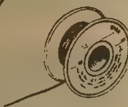
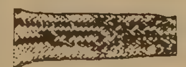

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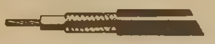

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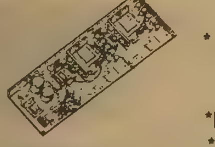

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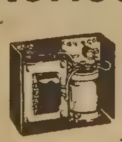

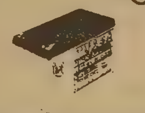

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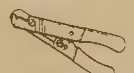

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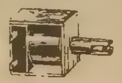

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## INK OR PAINT EFFECTS

This refers to the way in which areas of colored pixels, usually called ink or paint, is applied to the screen. They range from literal or opaque to a range of special preparations that can smudge, glow, glaze, sparkle, modify colors, or merge with other image cels. Some of these add dimensionality to images in various ways. For example, a transparent ink, which looks like colored glass when applied, lets you see though it to images underneath. This effect implies that they are behind it at a distance. By using successive layers of glass inks this approach can be exploited for the maximum effect. Similarly, softening and smudging can be used to produce an aerial perspective. Some 3-D tools have an automatic atmosphere feature that allows you to adjust the impact of the distance between objects. Using different inks or paint types in 2-D tools can produce the same results often instantly, without long rendering delays.

## COLOR EFFECTS

It is easier to get the appearance of 3-D using color than in black and white. This doesn't mean that any color image has more three-dimensionality than a black-and-white image. It does mean, however, that if you understand how color works to make you think you are seeing 3-D, you can use color more effectively to trick the viewer into thinking that they're looking at a three-dimensional representation.

Color cycling is one way to achieve this effect. Although a subtle 3-D effect, filling a textual title with a color gradient and then color cycling it begins to give it the appearance of a flying 3-D logo. Because of the rapid color changes, using this effect can also suggest that the text surface is warping rapidly.

Color cycling has many powerful as well as subtle effects, making it more difficult to use effectively than it might seem. Changes in color bring out certain details and suppress others. When the colors of parts of an object change, the object itself often seems to move, even though it's not. This can also happen even when the colors themselves are not changing, but rather when the object is moving into different lights or other events around it are going on.

## SPECIAL LIGHTING EFFECTS

Professional 3-D animation tools have a sophisticated system for lighting scenes that allows you to use various spotlights, omnidirectional lights, etc. to produce all kinds of special lighting effects. At first it might seem that 2-D animation tools will not let you produce these dazzling 3-D lighting effects. After all, you don't have a 3-D model to apply the lights to. There are various ways you can get the same or similar lighting effects. Even those who have a 3-D animation tool may find that it is more efficient to use a 2-D tool to apply these effects animations that were developed with 3-D tools.

For example, one of the things that you can do with a 3-D tool is have spotlights that can move a beam to emphasize various parts of a scene at different times. So, bright, circular spots of different color lights can play about and suddenly reveal something that wasn't visible before. But naturally, this kind of thing can often be done just as well in a 2-D tool. One way is to use image processing of confined geometrical areas that change from frame to frame. For example, if you brighten just the area confined within a circle, but vary the location of this circle from frame to frame, you get the effect of a moving spotlight. This can even be done with already rendered animations that have been originally developed with a 3-D tool.

## LEARNING WHEN TO SAY NO

In today's world of animation, 3-D and 2-D animation tools need to be used together to get the best results with the least amount of time and resources. This approach suggests that you understand what result you're after, and which aspects of that can best be obtained by the different kinds of tools. Finding the right answer involves a practical knowledge of which effects you can achieve with any particular tool. There is really no substitute for 3-D when you want to experience moving through vast, elaborate spaces in depth, with vivid, photo-realistic detail. However, for a more dreamlike, suggestive style that doesn't demand the literal separation between distinct objects, you can often use 2-D graphics and animation tools.

There are also an almost endless number of ways of combining these two types of tools. You can prepare 2-D artwork to be used in 3-D as texture and reflection maps, etc. You can also use 2-D tools for post-production processing, and applying inks and special effects to animations that were originally rendered using 3-D models. As always, the important thing is not to let the tool dictate how you're going to approach a problem. You could say that the real master of his tools knows when not to use them, and when to look for another tool that is better suited for the job. ■

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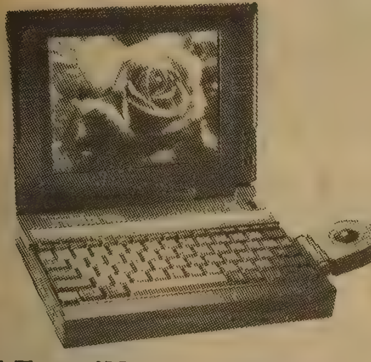

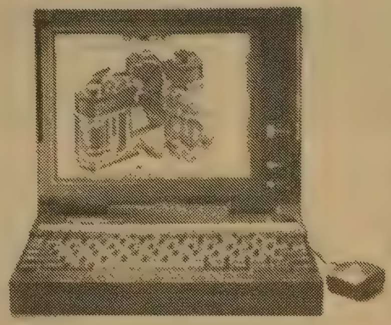

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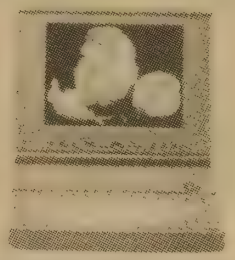

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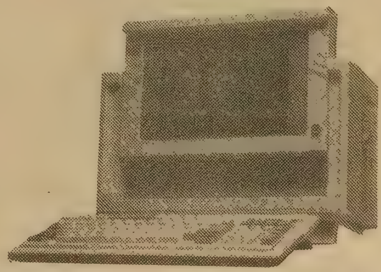

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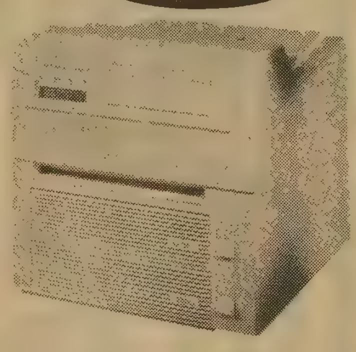

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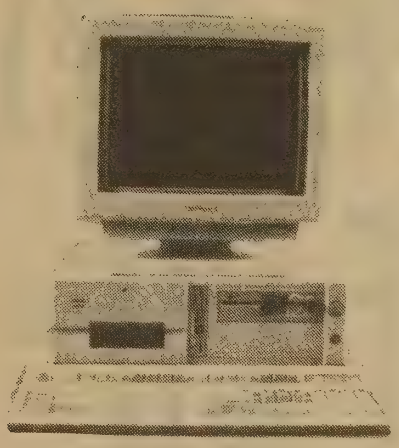

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# The New Wave Of CD-ROMs?

### BY JONATHAN E.

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Reliable statistics are notoriously hard to find in the multimedia market. No one seems to know how many CD-ROM drives are really out there or what they're hooked up to—or where. Clearly, CD-ROMs are relatively commonplace in professional situations, but although rumors fly about some impressive numbers, publishers of multimedia consumer titles are reluctant to confirm or deny actual sales figures.

Recently, it's been floated that there will be twice as many CD-ROM drives in the home consumer market after Christmas as there are at present. This is, of course, somewhat speculative, and the sort of hype that has so far driven the multimedia world with optimistic expectations based largely on wishful thinking. It's true that without wishful thinking progress would never be made, but I remain skeptical that this optimism is likely to become reality.

At least some serious mass-marketing efforts are now being made to put real muscle behind such thinking. Apple's eight pages of advertising for the AppleCD 300 disc drive for both Macintosh and Windows machines, the PowerCD, and about one hundred assorted CD-ROM titles in a recent issue of *Newsweek* are one illustration of these efforts, and there are widespread other indications that this is

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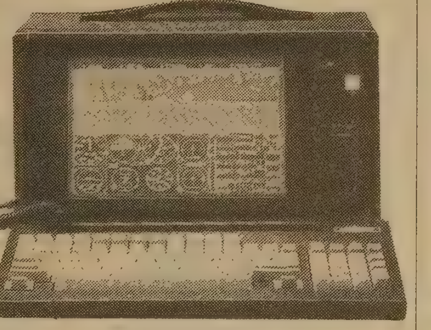

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- 120 MB HARD DRIVE
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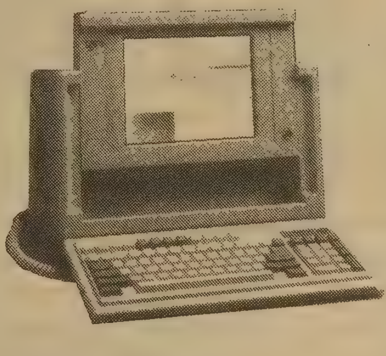

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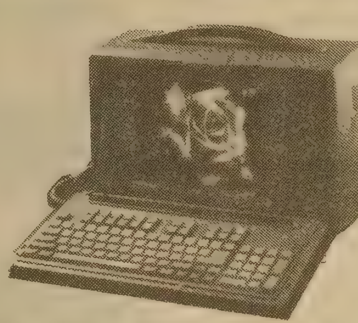

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| 486-50 MHz ISA | CALL | 386-33 MHz w/64K Cache | CALL |
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when push comes to shove for the consumer multimedia title market.

Certainly, there is great interest among the general public, as the more-than-hour-long line to get into the WOMAD Festival's Future Zone tent demonstrated. I only caution that the battle to make CD-ROMs any sort of mass medium with real cultural effect is still not over. In fact, it is barely begun; this interest has a long way to go before the public is convinced to spend the quantities of money required to repay the huge investments of time and money already made by the industry and numerous pioneering individual investors and developers.

> Multimedia products are going to have to appeal on the basis of content and design.

## CAUSES FOR SKEPTICISM

A few areas seem to me to be still particularly problematic. One is that, when all is said and done, multimedia products are going to have to appeal on the basis of content and design. They will only sell in large quantities if they answer consumers' needs or wants—not because they're nifty little discs with some sounds, video, and a lot of text on them that you can play on your computer or television. Or at least, they won't sell at current prices if that's all they are.

To date, too many titles rely on the techno factor of "look what we can do with a computer" rather than demonstrating a clear advantage over existing media or combinations thereof. Every week I talk with someone who's convinced that they have a great multimedia title, but more often than not their ideas would actually work quite well without running on a computer; their view of CD-ROMs is essentially (and ironically, considering the current state of the market) that of a marketing gimmick. When you get down to it, a printed book and a regular audio CD player with a remote control can do a lot of what many multimedia titles offer—at a lot lower cost and with a much larger market. Even though consumers have found VHS video cassettes acceptable, I cannot believe that many will find common, current computer-video quality much fun to watch.

The area of design and navigation continues to give me doubts. There is something that doesn't quite click about the experience of viewing and finding one's way around many CD-ROMs. I grant that the complexities of presenting information in a nonlinear fashion require a variety of navigational designs. However, all too often figuring out the steps required to get to the real content seems to be more trouble than it's worth, especially considering the quality of much of that information—a couple of dozen words, lame graphics, or a few seconds of low-resolution, small-screen video.

Curiously, for a supposedly random-access design, retracing one's steps is often nearly impossible unless one loops around; there's no easy equivalent to flipping back a page or two. We all know how to use books (or, at least every likely CD-ROM purchaser does) and, as Brian Eno notes, they're "an evolved technology." I believe that CD-ROMs will provoke subtle dissatisfactions rather than pleasurable, fulfilling experiences until they are generally as easy to navigate as books and can provide clearly superior results over combined traditional media. Word-of-mouth alone could potentially derail the mass consumer market unless this issue is solved.

The answers to questions about reading off-screen, portability, how much interactivity the couch-potato mentality really wants, the nature of that interactivity, reasonably stable platforms, and backwards compatibility, along with commonplace hardware configurations, are other unknowns that might yet trip up consumer acceptance of CD-ROMs for anything other than games and rather specialized titles.

## WHAT ELSE IS NEEDED

Beyond these difficulties, for the consumer multimedia market to happen, it is essential that it moves beyond being purely a computer market. Machines like Philips' CD-I, Kodak's Photo CD, and the forthcoming 3DO, whatever their limitations, are steps on this path.

However, at least two other advances need to occur. One is that developers of titles must improve their public relations with intelligent treatment of reviewers. They must make serious efforts to reach appropriate journalists and mail out review copies without considering them to be returnable as is often currently the case. Multimedia titles are closer in nature to books, videos, or audio CDs than productivity software or expensive hardware, and journalists will need to build reference libraries for comparisons whether they review each individual title or not. I have been shocked to see developers quite seriously expecting journalists to pay forty or fifty dollars for a product with a manufacturing cost of little more than a dollar.

In return, the press must get serious about reviewing titles. Two hundred and fifty words or so are simply not adequate in most cases to describe, let alone evaluate, a complex title that consumers are being asked to pay substantial amounts for, and which they often cannot try out in any meaningful way before they buy—even the equivalent of flipping through the pages of a book is rare. A great deal of consumer education is needed so that they can distinguish between the good and bad titles and understand what makes them so.

The second advance needed is in the area of distribution. Simply put, consumers must be able to find titles on retail shelves—and on retail shelves other than in computer stores. I recently asked Gary Frank, owner of The Booksmith—a prominent independent bookstore in the Haight-Ashbury, a neighborhood known for cultural evolution and transformation with a fair-sized population of the cybersomething generation—if he carried Voyager's Expanded Book series. Frank knew of the series and was uncertain if he would carry it, but I was extremely surprised to hear that he hadn't even been approached.

Eventually, if all goes well, distribution channels will become established. In the meantime, I suggest that vigorous efforts

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The battle to make CD-ROMs any sort of mass medium with real cultural effect is still not over.

are needed to place titles in every conceivable location until it becomes clear where consumers are inclined to go for their purchases.

Obviously, this is a rather sweeping survey of a complex and evolving situation and concentrates on the problems rather than the bright spots, particularly on book conversions rather than new forms of music—or video-based titles.

Some CD-ROM titles can already be considered successful in certain areas—Brøderbund's Living Books line leaps to mind. In fact, that line is so successful that Brøderbund and Random House have formed a joint venture to expand on that success. Furthermore, early adopters will undoubtedly cause CD-ROMs to become established in other market niches.

However, the current unbridled enthusiasm for what is a very young and untried market strikes me as overstated. The front-line, bleeding-edge consensus is that CD-ROMs are only early stepping-stones on the long march to the online, interactive Netvision of the future and various forms of virtual reality. This more than implies that the technology of today is planned to be obsolete. If the general consumer public figures this out, along with today's limited capabilities, I cannot help but question how much they'll buy and for how long.

## EBOOK, INC.—JUST DO IT

Savvy developers are well aware of the above points and are in the process of addressing them. Ebook, Inc. of Union City has a number of creative approaches that offer some promise.

Three key points to Ebook's plan are in the related areas of distribution, pricing, and the installed base of relatively stable platforms. Many of Ebook's titles are music-based, and so they will be available in the Tower Records chain in the very near future.

In addition, only the first track will be a Yellow Book data track. Initially, this will be for MPC machines—by far the largest installed base in the computer world. However, beyond the computer world there's an even larger installed base of old-fashioned audio CD players, and so the rest of the tracks will be Red Book audio tracks. This means that they can be marketed as audio CDs at the appropriate price point of a little under $20, not much more than a regular CD, and actually less than most imported albums.

The thinking is that consumers will be prepared to pay for the audio material on its own merits, while the few dollars extra are explained as "look what you also get." This strategy encourages the future purchase of a CD-ROM drive in order to access the data track without limiting the current potential market to computer owners. The strategy also helps Ebook become a recognized name in a larger market. I'm curious about how many audio-CD owners will not read the instructions and attempt to play the first track, but Ebook thinks that this will not be a serious problem.

Ebook's music-based titles include *Jazz: A Multimedia History* with excellent performance film clips. One clip of a young Miles Davis with John Coltrane as a sideman shows that content can at times overcome the difficulties of computer-video quality. Ebook is now working on titles covering the music of Duke Ellington, Count Basie, and various other jazz and blues artists that include interviews and discographies in addition to music tracks. On the classical side, Ebook has interactive titles dealing with several of Mozart's works and Vivaldi's *Four Seasons*, including musical notation, analysis, biography, and graphic elements.

Also in production is Fred Jones' *Trouble in Mind*, an interactive multimedia electronic novel with substantial spoken word, music, and video elements. Its interactivity is not of the branching-plot-line variety, but instead allows the reader to dig deeper into the mind of the narrator with on-demand music, maps, and additional stories. The intent is to keep the basic story while providing an extra impressionistic layer of content.

Not all of Ebook's titles use Red Book audio tracks to the extent that they can be sold as audio CDs. Jazz: A Multimedia History, for example, is an older title and was produced before the strategy was developed. It also relies heavily on video content that renders the strategy inappropriate. I suspect that *Trouble in Mind* will seem kind of thin if you can only access the audio content. Most of Ebook's other product lines, which include electronic book versions of children's stories such as *Aladdin and His Wonderful Lamp*, art histories, travel guides to California, and the Gettysburg battlefield, as well as authoring systems for other aspiring multimedia developers, are likewise only applicable to computer owners.

However, this diversity is also a key to success since the consumer market will require a variety of content. Ebook's wide range allows it to find out firsthand what kinds of titles do well in different locations and to tailor its production and marketing accordingly.

Ebook is learning other lessons from past experience. Its new products are greatly improved from earlier ones. In general, the screen design is much more pleasing and consistent. This has been carried over into relatively simple and book-paradigm navigational design. Most of Ebook's titles are for MPC machines, which are often hooked up to incorrectly configured systems. To overcome this problem, Ebook titles come with an install program that diagnoses what is needed to bring the system up to the minimum required standards. This program is also available for license.

Ebook can be contacted at 32970 Alvarado-Niles Rd., Suite 704, Union City, CA 94587; (510)429-1331, voice; (510)429-1394, fax.

## BOOK FAIR

One place for the general public to see a large number of multimedia titles will be this year's San Francisco Book Festival to be held at the San Francisco Concourse Exhibiton Center, 8th and Brannan streets, on November 6 and 7 from 10 am to 6 pm. There'll be twenty-three exhibitors in a special pavilion, including Ebook, The Voyager Company, BMUG, Claris, JourneyWare Media, MacMillan New Media, Eden Interactive, Sumeria, Zelos!, Peachpit Press, Haukom Associates, Imaginia, Knowledge Adventure, and the San Francisco-Multimedia Development Group. Best of all, admission to the Festival is *free!* ■

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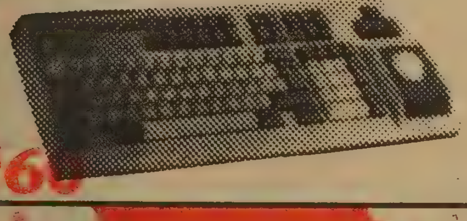

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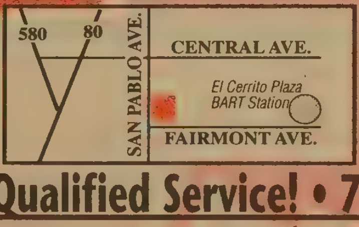

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*continued from page 280*

page and tabloid size. The full-page model is under $10,000, and takes up very little more room on the desktop than a Personal LaserWriter. The instructions are clear, and it is easy to use—from the time it left the box, I was able to get it up and running in less than an hour. That included setting up the SCSI with the SuperMatch Interface Box (which includes external termination), and loading the big CYMK ribbon and the operational software. Included in the package are plug-ins for Adobe Photoshop, EFI Cachet, Fractal Design Painter, and Fractal Color Studio.

Bundled with the package is the latest EfiColor matching system software. From the RasterOps 24XLTV video capture board, very good quality video frame prints can be pulled through the ProofPositive printer. The Apple Color OneScanner with Ofoto 2.0 can complete the desktop color loop configuration.

You must have a Centris 650 or a Quadra to support the ProofPositive Printer. To run more than one application at a time, or to print from QuarkXpress, you really need at least 16MB of RAM in your Mac. With a minimum of 8MB, you can pull prints through Adobe Photoshop's memory-dodging Export channel, thanks to its thoughtful and efficient software design.

## APPLE ADJUSTABLE KEYBOARD

When you think of the "computer user interface," usually what comes to mind is the front end of the operating system desktop controls that you see on your monitor screen. But it's really the keyboard that's the most direct and intimate interface between you and your computer.

As important as that point of contact is, keyboards are treated mostly as commodity peripherals, with little difference between them in basic concepts.

Spurred on by the advance of ergonomic design in the workplace in response to carpal tunnel syndrome and other repetitive stress injuries, there has been a slow but long-overdue rethinking of peripheral design. Apple's Adjustable Keyboard, introduced a few months ago, is one of the better answers to this need.

If you've already seen one, with its "split" down the middle, you may have responded positively to its Star Trek look, or merely interpreted it as a post-modern cubist style statement. But it's actually the ruler-straight conventional keyboard that is abstracting nature, not the Apple Adjustable version. The next time you're in front of your straight keyboard, close your eyes and extend your forearms until your hands are over the keys. Open your eyes, and watch while you rotate your palms about thirty degrees in order to match your fingers to the rows of keys. If you relax them, your hands will rotate back to their original positions. This means that along with everything else that you do in order to type, you must keep up that tension in your wrists, hour after hour, without relaxing.

## HANDS-ON APPROACH

Approaching the Adjustable Keyboard, it

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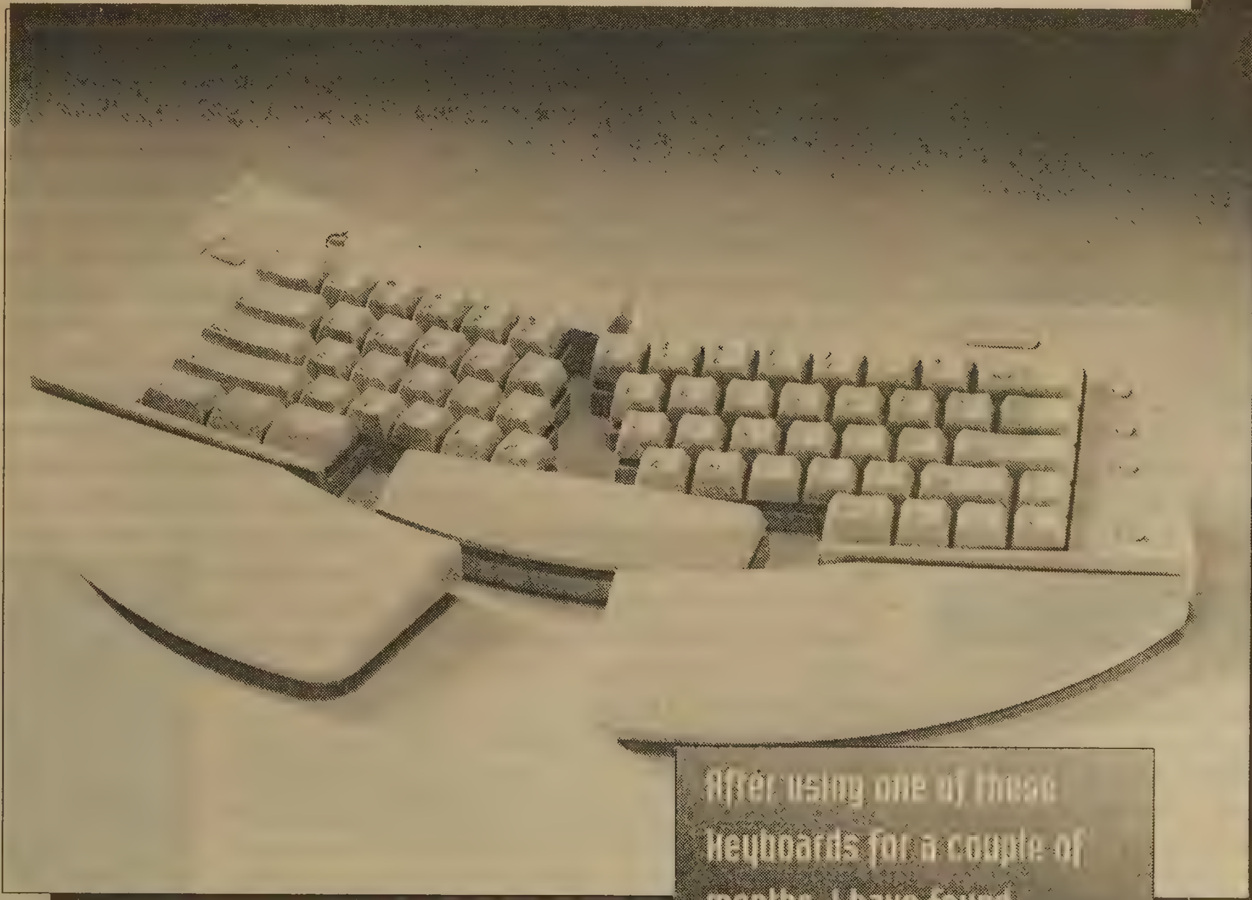
may not be a bad idea to close your eyes too—because its looks may have put you off in the first place. But when you lower your fingers to the keys, your wrists can remain in their natural positions. The keys can be oriented at just the right angle—adjustable up to thirty degrees.

After using one of these keyboards for a couple of months, I have found noticeably reduced finger-fatigue and typing tedium. I can also touch-type faster.



After using one of these keyboards for a couple of months, I have found noticeably reduced finger-fatigue and typing tedium.

The Apple Adjustable Keyboard has a space bar that's hard to miss. It is wide and deep and extends in a crescent below. There are two cheek-like plastic palm rests that clip to the bottom of the keyboard. They fall off if you lift the keyboard from the desk. I leave them off and use a Silicon Sports Puzzle Pad wrist rest bar instead to good advantage.

There are sound recording and playback control buttons on the right hand side ready for multimedia productivity applications. But where are the power user's function keys? A separate extended keypad module can be connected to the right or the left side of the unit. In the extended keypad's layout, the cursor key cluster and the numeric keypad aren't too far away. The six document editing keys are above the cursors. To the left of them are the three columns of fifteen function keys (an odd configuration).

Apple includes a detachable clear plastic template cover that clips on over the F-keys. The idea is that you can write your own codes for the functions of your choice, as in CE Software's QuicKeys, or that third-party software developers might imprint template accessories with proprietary commands keyed to their programs, like Excel or WordPerfect.

A better approach than writing on the template itself is to unclip the template and lay strips of self-adhesive paper correction tape on the unit under the rows of F-keys. Write the codes or symbols where you want them and then replace the template. They won't wear off and are easy to change.

But the real rub here is that the F-keys are so far away from the alphanumeric keyboard that you have to lift your hand from the keys and reach over—to as much as a foot away—to press them. In most extended keyboards, the function keys are on the main keyboard itself in a top row above the number keys, just a flick of the finger away. This "island" extended keypad is a counterproductive gesture, in that it eats up time instead of saving it. Now, why couldn't they have designed the Apple Adjustable Keyboard with the F-keys above? The keys are small and compact, so they could fit with another inch or two of deck on the board.

## NOW IT CAN BE TOLD . . .

Well, they did.

According to someone who was on the development team for this product, they even completed another prototype version that not only neatly incorporated the F-keys, but also included a PowerBook-type of trackball. It got sidetracked and shelved during one of the reorganizations. Here's just another example of how, in any big, productive company, there are a lot of good ideas that don't get out the door as well as all those flawed concepts that rightfully end up flaming in the trash can. This could have been *the* Mac keyboard of the '90s!

## ERGONOMIC MOUSE

The new Apple Ergonomic Mouse, following the lead of some other developers such as Logitech with the MouseMan, also lets nature take its course. When you extend your arm to rest your hand on a table, the hand is cupped. The original Apple mouse was as flat as roadkill, so you had to spread your palm to match its surface. The new Ergonomic Mouse is a natural fit with the shape of your hand.

Note: If you are using a third-party mouse, or perhaps an older Apple mouse, with a 64040 Mac, and you encounter a strange phenomenon (rarely encountered) where the cursor only moves down on a diagonal after bootup —relax. There's nothing wrong with your computer. Try the new Ergonomic Mouse that came with the machine and the glitch will be history.

The Apple Adjustable Keyboard and the Apple Ergonomic Mouse are part of the continuing user-friendly human interface that's being extended even further with the new Mac AV series of computers—so user-friendly that they listen and talk back to you. ■

continued from page 286

peripherals for the 1200 and 4000 to make them 100% CD32 compatible. This will coincide with the AmigaDOS 3.1 upgrade that includes CD32 modifications, working PostScript, and improved graphics performance. They have also added the ability to gracefully shut down the OS to give developers full access to the hardware's power.

The 1200 CD add-on will not be SCSI-based. Commodore assured me that this will not be another A570 fiasco—there won't be any CD32 software that won't run. The A570 was supposed to turn an Amiga 500 into a CDTV, but it was released too late and wasn't completely CDTV compatible.

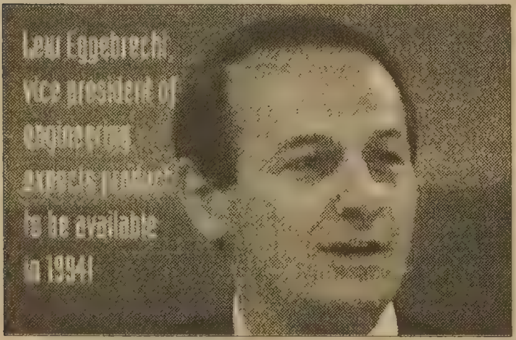
An MPEG board will be available for the 4000, ideally by year end. I would also expect a similar offering for the 1200, unless it uses the same CD32 MPEG module.

## AGA UPGRADE

CD32 compatibility requires an AGA Amiga. Owners of non-AGA Amigas should stop dreaming of a possible upgrade to AGA. It ain't gonna happen. Only a motherboard swap could make this possible, and that just isn't cost effective for Commodore.

## FUTURE COMMODORE PRODUCTS

The much-awaited tower version of the 4000 is ready for production. Because priority was placed on CD32, manufacturing of the 4000T has been delayed. We should see this product soon, however. Pricing has not been announced; Jim Dionne indicated that it will be "reasonable," but obviously higher than the current desktop model. Besides the greater drive bay capacity, the 4000T has two video slots, which can be used simultaneously.


Lew Eggebrecht, vice president of engineering expects product to be available in 1994!

There are also three Amiga/PC AT slots and one other that looked to me like a single PC/AT slot.

A SCSI-2 controller will be built into the 4000T's motherboard. This is the exact same circuitry as the 4091 SCSI-2 card for the 4000. Commodore indicated that SCSI-2 will eventually work its way into the 4000's motherboard too, making the 4091 an interim product.

## THE NEXT GENERATION AMIGA

According to Lew Eggebrecht, vice president of engineering at Commodore, they have working silicon of the next generation Amiga chip set called AAA (triple-A). They will make one more pass on the chips, with fully functional chips existing right after the first of the year—much sooner than anyone expected. Eggebrecht expects actual product to be available in 1994!

AAA, based around four custom chips, is best characterized as ten to twenty times the performance of AGA! High-resolution screens, 24-bit color, high video scan rates, and 8-channel 16-bit sound will be featured. The blitter will be extremely high-performance and pixel-based rather than bitplane-based, as it is now. The start and end of a blit will be totally transparent to the user. The blitter will also be able to supplement rendering algorithms.

Any possible upgrade to AAA for AGA machines will require a motherboard swap, so it is very unlikely this type of upgrade path will be provided.

Commodore is investigating RISC processors, but will continue to support the Motorola 680X0 family to its conclusion, probably the '060. A RISC processor is undoubtedly in the Amiga's future. Eggebrecht indicated that once the hardware migrates to the RISC environment, Windows NT could be easily ported to the Amiga.

Retargetable graphics will be implemented with AAA, but should be available to all Amigas. Video on the Amiga will be just like a PC, where you can plug in any display board that has the proper driver software. The much-speculated DSP project has been suspended due to lack of resources. Commodore is looking for third-party companies to take over this and several other small projects, free of charge on a non-exclusive basis.

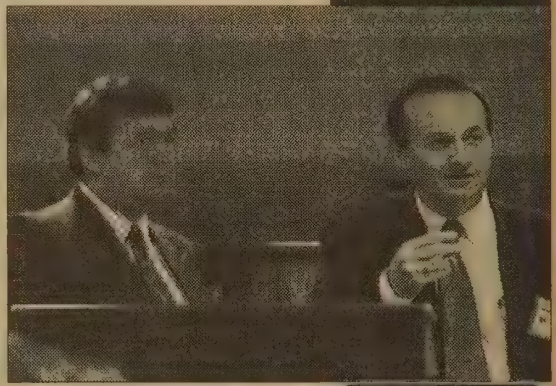
Work has even already begun on the next generation CD32. Using some AAA technology, Commodore is close to getting 16-bit (not HAM8) 352 x 240 animations to run at 30 frames per second. The next CD32 may even sport a RISC processor! (Note: this product is a long way off.)

## OTHER COOL WOC SIGHTINGS

•Many 24-bit display cards were being demonstrated like Retina (see issue #112), Piccolo from DKB, Picasso II from Expert Services, EGS-28/24 from GVP. All boards except Retina feature automatic monitor switching between normal Amiga and 24-bit outputs for single-monitor capability, a very nice feature. Additionally, EGS has the ability to automatically take advantage of Zorro III slots for enhanced performance.

•Centaur was promoting its OpalVision 24-bit board along with some upcoming add-on modules. Based on the demonstration I saw, this desktop video system will provide the Video Toaster with some stiff competition. The user-definable video effects and audio switching capabilities were very impressive, as was the OpalPaint paint program.

•Warm and Fuzzy Logic Inc. was promoting LightRave, which allows users to run Lightwave without a Toaster! (You must still be a legal owner.) Rendering to popular 24-bit graphic cards is supported, and you can even run Lightwave on an Amiga 500 or 1200!



•SunRize Industries' new time-line-based graphical user environment for arranging and mixing of samples to SMPTE timecode was very impressive. Also, there was considerable interest in Utilities Unlimited's Emplant board that can turn your Amiga into a color Macintosh!

Due to lack of room, I'll leave it to the Amiga-specific magazines to cover the other fantastic stuff at the show. The one observation I'll make is that although there seem to be fewer Amiga developers these days, the products from the surviving ones are getting better and better.

These are really exciting times for the Amiga. Consider that the Amiga is being used for production computer-generated effects for two network television series, *seaQuest DSV* and the upcoming *Babylon 5*. We're not talking about mock computer display screens either. Furthermore, if Commodore can sell the masses on CD32, we may find that being labeled a game machine may not be that bad. Nintendo and Sega don't seem to mind. ■

*Continued from page 230*

a snap-on Microsoft BallPoint mouse with QuickPort connection (no cable required), an oversized cursor, Advanced BatteryPro power management system, and custom utilities for quick entry into and out of Windows. ($2499) Texas Instruments, Inc., PO Box 6102, MS 3243, Temple, TX 76503. 1-800-527-3500.

### AST BRAVO NB

The AST Bravo NB family of notebook computers is packed with features, such as local bus enhanced graphics for fast video performance, PCMCIA Type III support for increased system expandability and functionality, and an integrated trackball. The 486-based Bravo NB computers come in monochrome, Dual Scan STN color, and TFT color versions. The system comes standard with 4MB of RAM, expandable to 20MB, one PCMCIA Type III (or Type II) slot, a 3.5", 1.44MB internal floppy disk drive, and 80MB hard disk drive, expandable up to 170MB. A nickel metal hydride battery gives users up to three-and-a-half hours on the monochrome system and up to three hours on the color models. (Suggested list prices start at $1699 for the monochrome systems; $2499 for Dual Scan STN color; and $3549 for TFT color.) AST Research, Inc., 16215 Alton Pkwy., PO Box 57005, Irvine, CA 92619-7005. 1-800-876-4278.

## AMIGA HARDWARE

### BOX 150

Box 150 is a Bernoulli 150MB removable disk drive for Commodore Amiga. With a 150MB storage capacity, it is especially suited for the personal video production user who needs high capacity, high performance, and low cost per megabyte removable media. The Box 150 features a built-in read and write cache for increased speed. It is available in two models: the Transportable for portable removable storage, and the Insider for installation into an Amiga computer. (Suggested list price for the Transportable is $1225, and the Insider is $1099) Iomega Corp., 1821 W. 4000 S., Roy, UT 84067. (801)778-1000.

# REVIEWS

## GAME REVIEWS

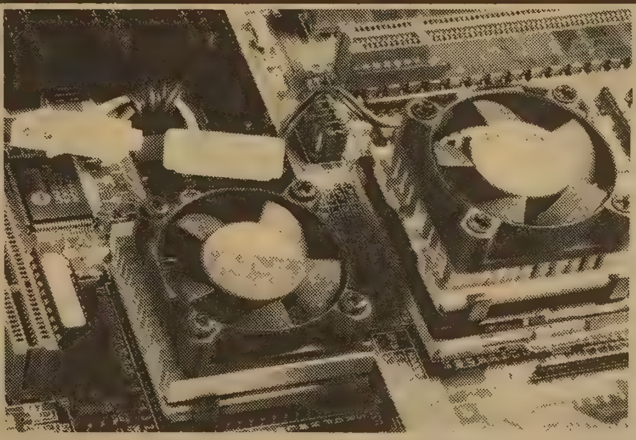
*By Mike Markowitz*

### WARLORDS II

**Designed By:** Steven Fawkner
**Published By:** SSG
**For:** MS-DOS (640K plus 2MB of Extended or Expanded memory, 80386 or higher CPU, VGA graphics, mouse, supports major audio cards).
**List Price:** $69.95

The original version of Warlords sold over fifty thousand copies, and won several awards. Set in a standard medieval fantasy world of swords and sorcery, Warlords was a deeply addictive game of strategy that required careful planning and provided constant suspense and surprises. Up to eight warlords compete to rule over a vast mythical continent. You win by gaining control of a majority of the cities. Towns produce armies of various kinds, and provide the gold you need to finance the war and recruit new heroes. The time scale is indefinite—a dragon can fly twenty-four leagues in one turn, while typical heavy infantry can only march eight leagues along a road. The map is based on a square grid, but an elegant movement system lets the program plot an optimal path for a selected group when you simply click on a destination.

Warlords II is a complete redesign that offers new options and features. New unit types include elephants, catapults, and Minotaurs. In the original version, fleets were expensive and took a long time to build. Now ships appear automatically



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when you move armies out to sea from a port or onto a river from a bridge. Mundane realism was not a design objective in Warlords II. For example you can destroy a city, but you cannot destroy a bridge.

The program can randomly generate a new map for each game. You can have most of the map hidden at the beginning of the game, except for a tiny patch around your home village. The lay of the land is only revealed as your units explore it. You need to find a town that breeds giant bats as soon as possible, since they are the cheapest long-range recon units.

Graphics and Animation: 9
Sound: 9
User Interface: 8
Overall Value: 9

I thought it was just me, but several other gamers have told me that they stayed up until ridiculous hours, like 4:30 am playing Warlords II when they first got the game. I had to delete it from my computer's hard drive, just to get any work done. How can one explain the power of this game to grab you by the throat and keep you up planning, scheming, and marching your armies around, long after sane people have gone to sleep?

Part of the game's appeal is the ability to customize everything. You can rename your heroes, the towns, and even the players. If you don't want to be the Dark Elves you can name your side the Jedi Knights, the Chicago Cubs or anything else that will fit into the text entry box. The program uses Chancery Black, a decorative font with a definite medieval flavor. Much of the game's appeal is the quality of the artificial intelligence that directs your computer-controlled opponents. You can select opponents with different styles and personalities. The diplomatic system recognizes three states: peace, hostility, and war. A state of hostility means you can attack your neighbor's armies, but not his cities. When peace prevails, the cursor turns into a heart rather than a sword, when you move it over the other player's unit. Treachery is always an option, but it makes you unpopular with the other neighbors.

The combat system ensures that the bigger battalions will usually prevail, but there is enough uncertainty to allow the weakest light infantry a small chance to slay the mightiest dragon. There is a complex system of combat bonuses and special effects. Heroes who accumulate enough experience can be promoted, and rare lucky units can be awarded medals, which increase their combat strength. You must constantly decide whether to use your heroes to lead armies, or to send them off exploring ruins in the hope of finding supernatural allies or magical items that will increase their power. A new option is the Quest—a hero who visits a temple can be given an assignment to slay a particular opponent, sack a particular city, or pillage a certain amount of gold. If you complete a Quest there is a large but unpredictable payoff. My opponents usually receive a legion of Archons (angelic flying warriors,) but all I got was a lousy tipoff to the hidden location of the Ring of Power.

The game is installed from two high-density 3.5" disks, and takes up about 6MB of hard disk space after installation. There is an illustrated manual and a simple tutorial for new players. The program has a delightful sense of humor, as you will discover when you try to resign from a game.

The only complaint I would make about the user interface is the lack of an Undo feature for unit movement. It is all too easy to click in the wrong place and send an army marching off into a swamp. From time to time the helmeted head of the Warlord himself appears on the screen to comment on your performance. This gets old after awhile, and there is no way to turn him off. (Strategic Studies Group, 8348 Monticello Dr., Pensacola, FL 32514. 904/494-9373. Fax: 904/494-9374)

## V FOR VICTORY: GOLD—JUNO—SWORD

**Programmed By:** Mike Traffanstead
**Published By:** Three Sixty Pacific
**For:** MS-DOS (2MB, Super VGA graphics, supports major audio cards); Macintosh (2MB, 256-color graphics)

Next summer will be the fiftieth anniversary of the Allied invasion of Normandy (June 6, 1944), one of the largest and most complex military operations in history. Most American war gamers know very little about the critical role that British and Canadian troops played in this campaign. This is due partly to the controversial reputation of the British commander, Field Marshall Bernard Montgomery, who was

*Continued on page 321*

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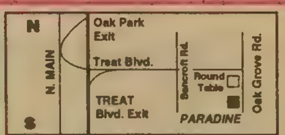

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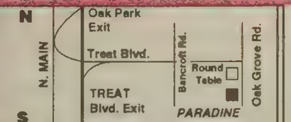

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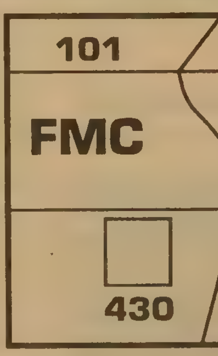

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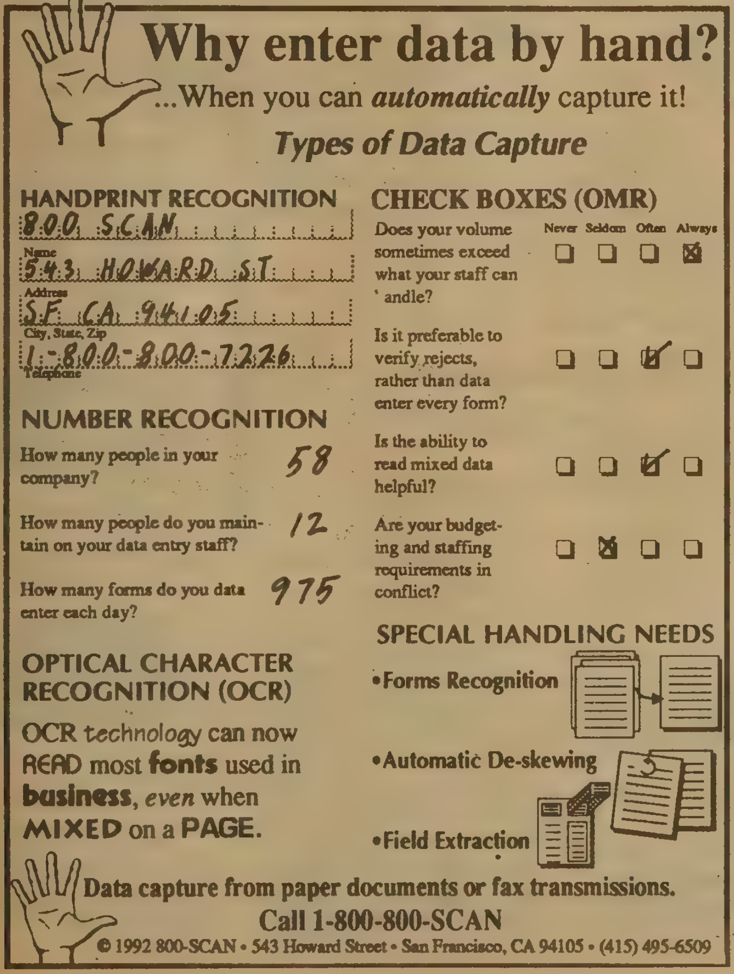

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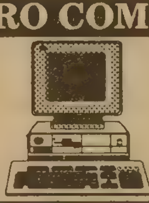

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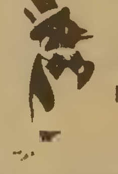

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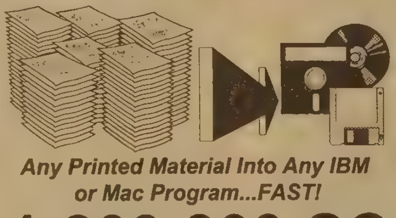

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*Continued from page 310*

considered a national hero by the British and a pompous, incompetent Limey twit by the Americans.

Thanks to excellent planning and a good measure of luck, the initial British and Canadian landings on beaches code-named Gold, Juno, and Sword went very smoothly, but in the following days and weeks there was intense and desperate fighting as Montgomery's forces inched toward the strategic town of Caen, opposed by every soldier, gun, and tank the Germans could scrape up. The unusual terrain of Normandy favored the defender. To shelter their crops from the wind, generations of Norman farmers had constructed "hedgerows," massive earth embankments, thickly planted with shrubbery, turning the landscape into a patchwork of ready-made forts.

Graphics and Animation: 8
Sound: 8
User Interface: 9
Overall Value: 8

This is the situation simulated in Gold—Juno—Sword, the fourth installment in Three Sixty's V for Victory series. This is the definitive World War II tactical game system.

The program requires about 6MB of hard disk space. Documentation is superb, including a thick reference manual, a tutorial booklet, and a full-color fold-out map. Since the program has very specific requirements for your hardware and system configuration, there is a comprehensive and well-designed utility program that analyzes potential problems and suggests solutions.

There are seven scenarios of increasing length and difficulty, covering the period from June 7 to July 2. Combat units are rated numerically for attack defense, morale, armor strength, antitank strength, disruption, and fatigue. The effectiveness of your units depends greatly on supply and terrain. Units in bunkers, for example, are almost immune to artillery, even the devastating gunfire of the British battleships. But units in open terrain can be annihilated by a few turns of bombardment.

Gold—Juno—Sword uses the same basic game "engine" as the previous titles in the series, but this release incorporates numerous bug fixes and patches likely to improve the playability of the earlier games.

For a generation of gamers that grew up rolling dice and pushing cardboard counters across paper maps that never seemed to lie flat, Three Sixty's V for Victory series is more than enough reason to buy the best computer you can afford. (Three Sixty Pacific, Inc., 2105 South Bascom Ave., Suite 165 Campbell, CA 95008. 408/879-9144) ■

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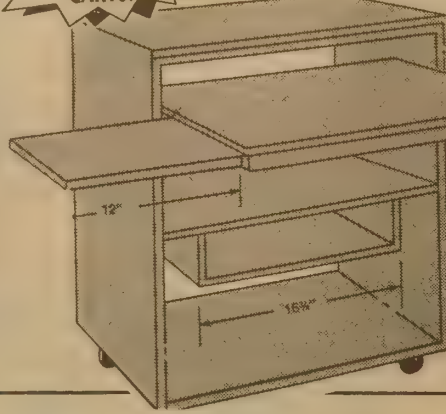

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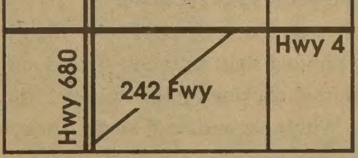

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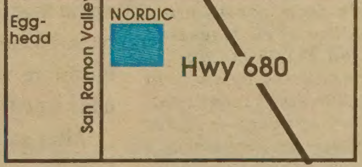

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# The New TIC Standard, Dropped And Forgotten

## Or A Serious New Battle For Microsoft

**BY JOHN C. DVORAK**

*The following is the only account of an incident that took place in Washington last month. It has not been reported elsewhere.*

It had already been a long day when the press conference began at 10 pm. Microsoft's Steve Balmer had five other press announcements for other new products that same day, and the Talk Is Cheap (TIC) standard was being rolled out on the West Coast, close to Steve's house at the Burgermaster "Dine in Your Car" drive-in, near the old Microsoft headquarters in Bellevue, Washington. We'd have our hamburgers and cocktails at Burgermaster; than we'd be bussed to the new Redmond Auditorium for the announcement.

Almost every technology writer had flown into Seattle for this announcement, and most of them were hungry. The burgers were a welcome change from oysters and shrimp. A couple of guys from the *New York Times* tried to start a milkshake fight. Luckily nobody paid much attention to them, except for a woman reporter from *PC Week* who cold-cocked one of them with a fearsome left hook.

The event started late at about 10:15 when the lights dimmed in the big tent set up in the Burgermaster parking lot. We were all shoved into buses which would take us to downtown Redmond.

We arrived in minutes and filled most of the seats on the ground floor of the spacious auditorium. The balcony was empty, although I sensed someone was up there. I could hear subtle creaking over my head.

Some dweeb I've never seen before introduced Balmer, who introduced Gates, who introduced Maples, who introduced a guy named Benbo McGee. McGee was the product manager for Microsoft's contribution to the TIC standard. McGee then introduced representatives from Intel, Motorola, Dell, Compaq, Gateway 2000, Digital Equipment Corporation, Ajax Screw Company, the WD-40 company, the Rosemount Winery of Australia, Hewlett-Packard, Data General, Toshiba, Paper Direct, Bantam Books, the Tillamook Cheese Company, NEC, Mitsubishi, and Matsushita. These companies had all signed on to the strategic partners program.

I later asked my Microsoft mole about some of the odd characters onstage, and was told that the mailing list soliciting strategic partners was mixed up with a couple of customer databases (apparently it was a bug in the Access beta—at least that's what she said might be the culprit). The company found that the newcomers were so enthusiastic to be invited in as strategic partners that Microsoft, in the future, will extend the invites to every company it has listed in-house as a customer.

After each and every strategic partner gave a five- to ten-minute diatribe about how proud they were to be part of the Talk Is Cheap standard and how proud they were to be working with Microsoft and how wonderful the TIC standard would someday be, and on and on, McGee came back on to explain what the TIC standard was all about, and to say that Microsoft would also make a surprise announcement.

The TIC standard would be an extension to the upcoming Plug and Play Standard which will allow software packages to work together on machines designed to work with software running on certain standardized hardware based on configurations spelled out in the Plug and Play standard. Or something like that. Actually I'm not sure what the Plug and Play standard is supposed to do and I doubt that even a single line of code has been written.

The Talk Is Cheap standard is supposed to simplify the nonexistent Plug and Play Standard and, at the same time, communicate with the Microsoft at Work standard and Microsoft at Home standard, along with being able to transverse the Win32S, WinNT, and Chicago (or is it Cairo?) APIs (application programming interface). Or at least that's the idea.

So McGee is showing a lot of flip charts and slides with diagrams demonstrating how Talk Is Cheap fits into an interface layer inside the WIN32S API, with hooks to the BIOS and a shell option to control and redirect the user interface, "so a monkey can use it," according to McGee.

Then the weirdest thing happened.

Out came a monkey, wearing what appeared to be an Armani double-breasted suit. The monkey had on a pair of glasses and was wearing a red wig. It was quite a sight as he bounded onto the stage. The audience made a gasping sound; some woman reporter screamed, then started laughing maniacally.

The monkey started jumping up and down on top of a computer that was set up on the table near the podium. He made a wild screeching sound and looked towards McGee, who immediately tossed him a banana. The monkey calmed down and tore into the banana.

"Now for a demo that you'll never forget, " said McGee, as a video projector put the large image of a computer display on a huge screen that was revealed as two curtains opened. The machine was booting Windows MT—Monkey Technology.

The monkey looked up at the big screen and let out a loud whoop. McGee grabbed the microphone off the podium and walked towards the animal with the mike in his hand. "This is not a chimp, ladies and gentlemen, but a South American monkey. A monkey that can use a computer!"

The audience, as if on cue, applauded madly. The monkey jumped right to the keyboard and mouse and started clicking on the interface and typing madly. Within seconds and for no perceptible reason the keyboard locked up—the machine crashed during the demo!

The monkey became enraged and grabbed McGee by the throat and started to choke him. Just then there was a rumbling in the balcony and I looked up to see hundreds, no, thousands and thousands of monkeys pouring down the aisles and jumping madly into the audience of journalists. The monkeys were screaming and pulling hair and biting and punching anyone and everyone. All hell broke loose as people fled out of the hall as fast as they could. The monkeys were relentless, chasing everyone into the streets and creating an incredible traffic snarl. I headed out a side door and ran across the street to what looked to be a safe location. One angry monkey chased me down but a swift kick laid him low. I got out unscathed.

By the time I stopped running I turned to see the auditorium on fire, with huge flames shooting out from the windows and roof. Monkeys were scattering all over the place. It was nuts.

The whole incident was hushed up, and Microsoft dropped the entire Talk Is Cheap media tour. If you call the company today, they won't even admit to the existence of the product or technology. The newspapers in Washington were somehow convinced not to print this story. An animal rights group was going to sue Microsoft until it turned out that a now-defunct animal training organization was behind the entire wig-wearing monkey stunt.

Nobody has ever explained to me where the thousands of other monkeys came from or where they went. One old lady says that in the Redmond area there is a lost colony of monkeys—part of a lost civilization of intelligent monkeys—who were protesting the development of Windows MT since it was "demeaning" in some odd way. McGee, who has since quit Microsoft, says the idea of using Windows MT as a way to highlight Talk Is Cheap, which is apparently incorporated into Windows MT, was a bad idea. He's now doing consulting for a Seattle-based startup.

People in and around Redmond admit that at night there is a lot of strange activity which has, until now, been attributed to bears and raccoons. Rumors of a monkey civilization have been rampant for decades, but it was always thought to be part of Indian legend.

One rumor floating around the area is that the huge Microsoft campus was built on the mystical burial grounds of the lost monkey civilization, and that this incident was only the beginning of what will become a bloody war between monkeys and the population of Washington State.

Nobody at the company was able to explain to me exactly why a Windows MT—Monkey Technology—was designed in the first place. I reckon the stories about the graveyard are true, and that the software was done to assuage the monkeys' irritation over the destruction of their grave sites.

All I know is that the project has been shelved and Microsoft isn't talking. ■

*© 1993 by John C. Dvorak. All rights reserved.* *John C. Dvorak graduated from the University of California. He is a contributing editor of* PC Magazine *and* MacUser*, and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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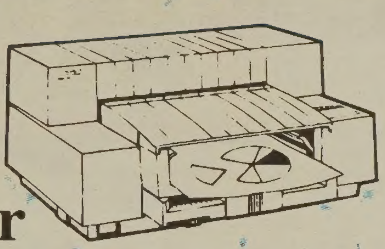

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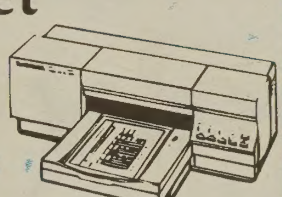

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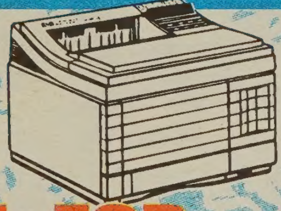

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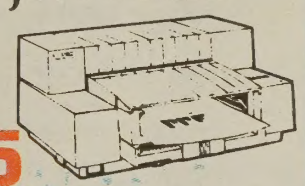

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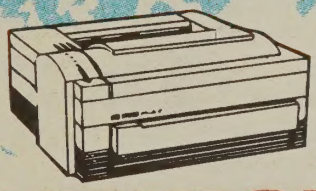

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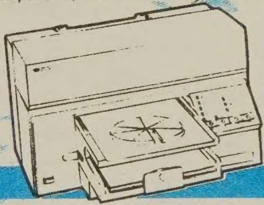

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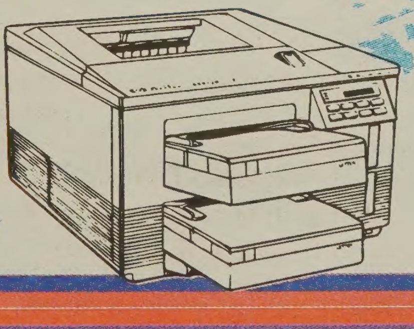

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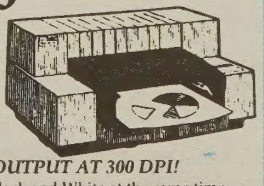

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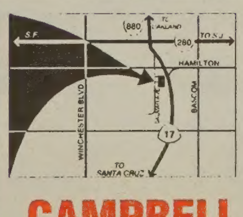

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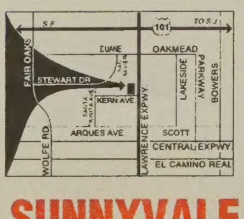

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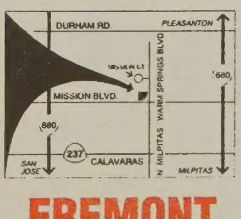

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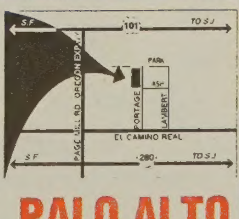

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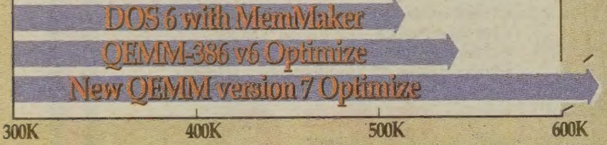

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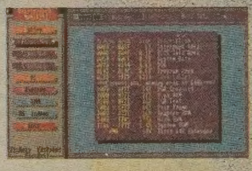

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*How we got the chart numbers* CPU—486/33 ALR Power/business VEISA machine equipped with 16 megs of RAM and running MS-DOS 6. Comparisons were done using the following memory managers: QEMM 7, QEMM 6.02, MS-DOS 6 MemMaker. In addition to the driver (or drivers) required by each memory manager, the following drivers, DOS resources and programs were loaded for all comparisons: in the CONFIG.SYS file: SETVER.EXE, DOS=HIGH, FILES=20, BUFFERS=10, STACKS=0,0, MVSOUND.SYS, SNDBK12.SYS, SLCD.SYS, DOS SHELL=statement, in the AUTOEXEC.BAT file: VSAFE, MSCDEX, UNDELETE, LSL.COM, NE2000.COM, IPXODI.COM, NETX OR EMSNETX, MOUSE.COM, SMARTDRV.COM, PRTSCCAP.COM.

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